POPULATION PROJECT ANNUAL REPORT

1971—1972

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INTERACTION OF HEALTH SERVICES AND FAMILY PLANNING

AT THE VILLAGE LEVEL

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RURAL HEALTH RESEARCH CENTER

NARANGWAL, PUNJAB, INDIA.

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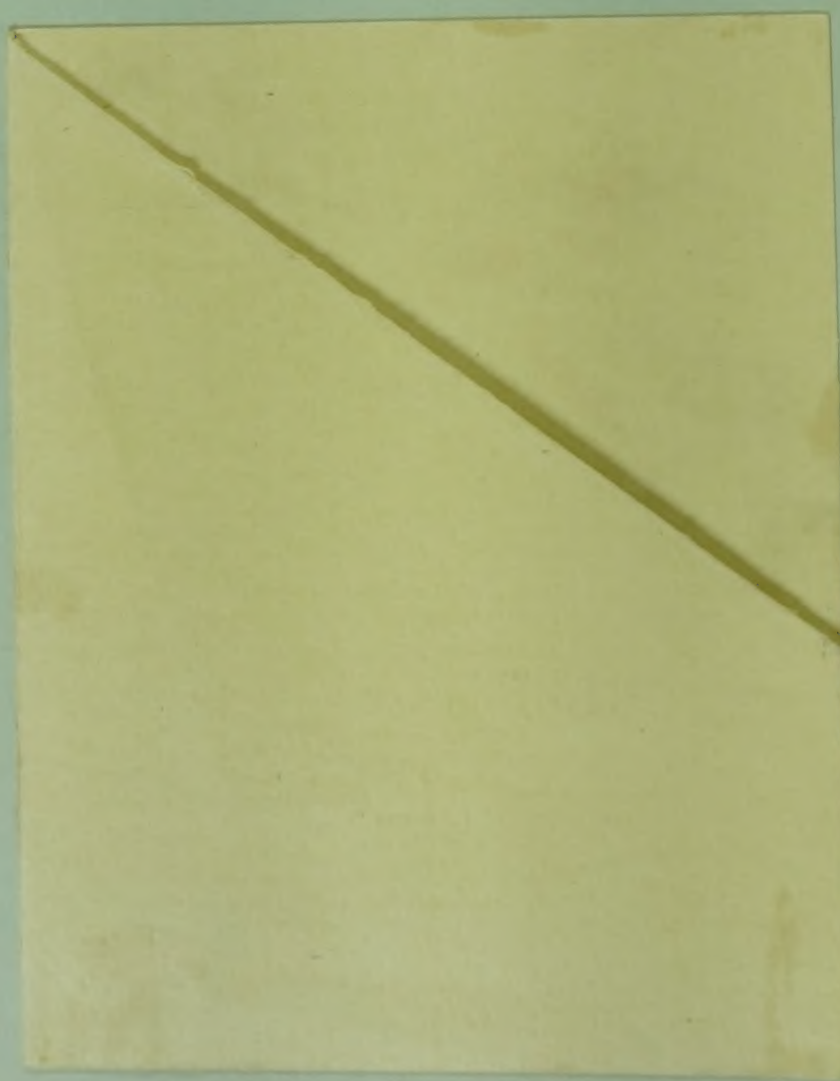

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RURAL HEALTH RESEARCH CENTER

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INTEGRATION OF HEALTH SERVICES & FAMILY PLANNING AT THE VILLAGE LEVEL

POPULATION PROJECT - ANNUAL REPORT 1971-72

Rural Health Research Center, Narangwal, Punjab, India.

INTRODUCTION

The Population project at the Rural Health Research Center began in 1966 as a study of the acceptance of Intrauterine Contraceptive Devices in rural communities. In 1968 this study was enlarged to include other methods of contraception and to investigate the value of combining health services with family planning services. Support was obtained from an AID contract, a PL480-Grant and through the ICMR. From its inception the project has been integrated with two other studies at RHRC - an investigation of the interaction of nutrition and infection in village children, the "Nutrition Project"; and the "Functional Analysis Project", which utilized the methods of operations research to analyze health needs of the community and effectiveness of the health services which were available.

Twenty villages with a population of approximately 22,000 receive various combinations of family planning and/or health services. The general hypothesis being tested is that attitudes toward acceptance of family planning methods will change if provision of these methods is combined with provision of health services, and that a result of this change in attitudes will be a reduction in the number of births.

As specific instances of this general hypothesis, it was proposed:

1) that contraceptive practice will be greater if family planning services (FP) are combined with general health services for women 15-49 (WS), than if FP is provided alone;

2) that contraceptive practice will also be greater if FP service is combined with health services for children 0-3 (CC), than if FP is provided alone;

3) that contraceptive practice will again be greater if FP is combined with both WS and CC, and this combination will produce an increment in FP practice greater than that obtained in hypothesis one or two;

4) that a decline in infant-child mortality will lead to increased contraceptive practice because of a decrease in the number of births desired by a family.

The experimental design constructed to test these hypotheses has been described in detail in previous reports. Very briefly, it consists of 4 cells of 3-4 villages each, with different combinations of family planning (FP), women's services (WS), and child care (CC) in each:

1. FP alone
2. FP plus WS
3. FP plus CC
4. FP plus WS plus CC

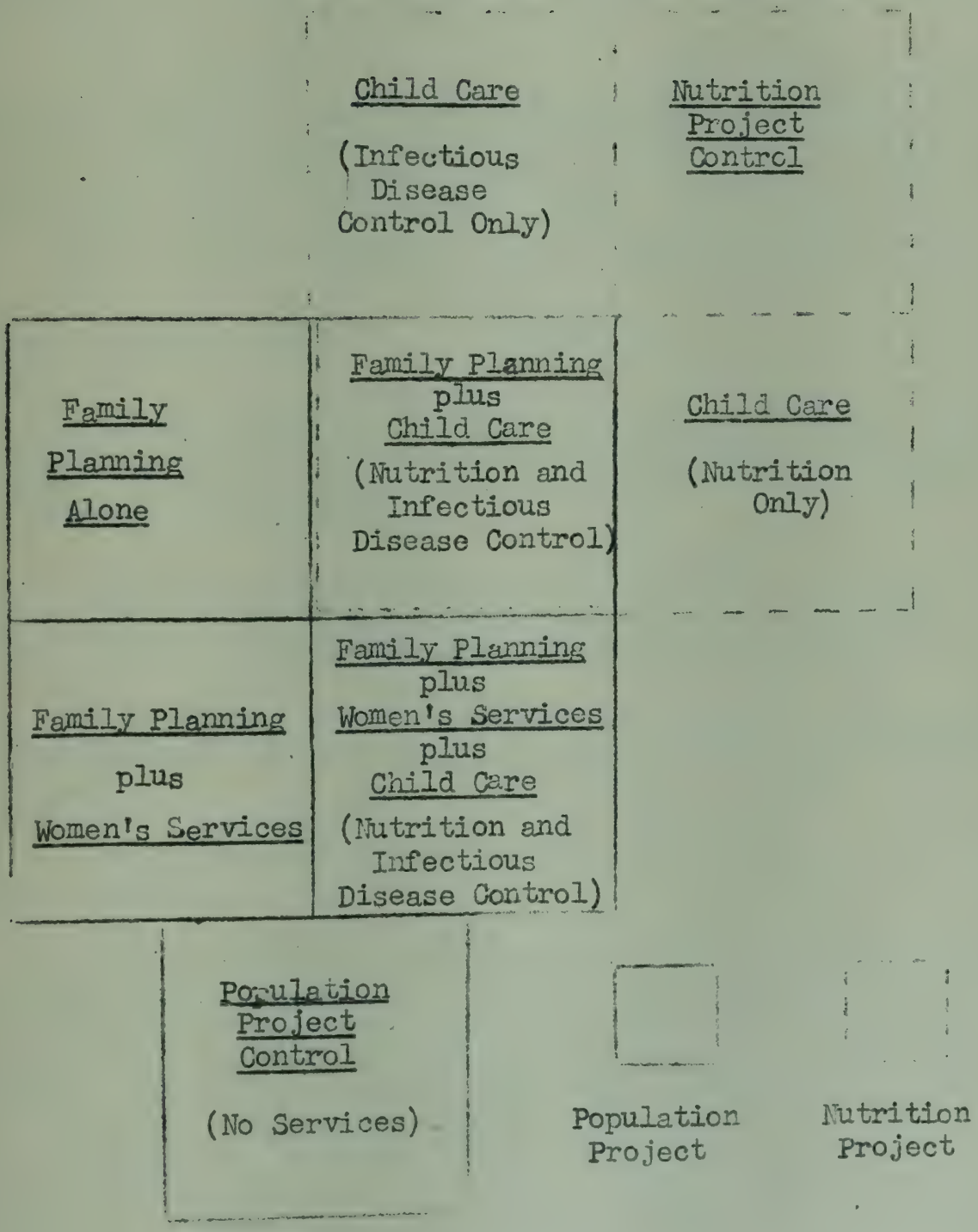
In addition there is a fifth group of 4 villages in which no services are provided by RHRC, although the usual government services continue. Each group of villages has a population of approximately 5000.

The child care services provided include nutritional supplements for malnourished children along with infection control. The "FP plus CC" cell is also one of the cells of the nutrition project. The basic experimental design and its overlap with the nutrition project is summarized in the diagram in Figure I-1.

Both medical care and family planning services are delivered through auxiliary nurse midwives (subsequently called the Family Health Worker-FHW) resident in the villages with supervision by lady health visitors, public health nurses and project physicians. The first task of the project was to work out the details of the system through which these services would be delivered. It was felt important that this process of building a delivery system should begin at the point of delivery - the village sub-center. Great emphasis has been placed on a careful analysis of what village workers actually can accomplish in a situation reasonably close to one which could be reproduced by the Indian government health services. In order to carry out this analysis as well as the other research objectives of the project, an optimal research system has been created, with ratios of population to family health workers considerably lower than would be planned for a pilot demonstration project carrying out the Narangwal system in an entire primary health center. In this way it should be possible to be reasonably certain that failure to accomplish a given task was not related to economic or manpower constraints, but to inability of para-professional workers to accomplish the task in a village situation. There appear to have been several such failures, as discussed below. In general they relate to either 1) health problems caused primarily by socio-cultural and economic conditions which must be eliminated before any health measures can be effective, or 2) health problems which can only be handled through elaborate hospital based services which cannot now be expected to extend to villages. In the overall analysis it will be important to examine these failures carefully, as well as the efforts which have been successful - increased FP acceptance and use, nutrition programs, treatment of children's diarrhea (a major cause of death), and immunization are notable successes. The results obtained so far suggest that some areas in which the village family health worker are successful should be carefully analyzed to ascertain whether workers with less training but with good supervisory and supportive services could achieve the same results. It may be that one family health worker could provide effective services to a larger population with the assistance of locally recruited and trained assistants, resident in each village.

FIGURE I-1.

Experimental Design of the Narangwal Population Project in Relation to the Nutrition Project.



A major activity this year in four new villages has been the creation of a family planning only cell in which no health services are provided beyond those directly related to the delivery of family planning services. Women educated as Junior Basic Teachers have been selected, given six weeks training in family planning education and methods, and posted in each of the four villages. An L.H.V. supervisor and a physician come once a week to hold a clinic. FP services in these villages began in June 1972. A more detailed description of this part of the program is contained in the body of the report.

The functional analysis group at RHRC has had the responsibility for the analysis of the work performance of all workers in the project (See the section on functional analysis in the main body of the report.) This is accomplished primarily through work sampling and an analysis of the records kept by the village workers. This group is also responsible for developing cost estimates for the various service inputs.

Data for analysis of the results of these service inputs comes from several sources:

1) Vital statistics (births and deaths) collected by special vital statistics investigators as well as by the FHW's, and analyzed by the statistical group. (See section on vital events and reproductive patterns in main body of report.)

2) Family Planning acceptance and practice rates obtained from ongoing surveys by the family health workers and male family planning workers. (See section on Family Planning acceptance and practice.)

3) Periodic surveys of knowledge and attitude about, and practice of family planning. These surveys are combined with census and socio-economic surveys.

4) Ongoing surveys of nutritional status and morbidity in children 0-3 years of age.

Some potentially useful information has come from preliminary analysis of this data. For example: the combination of nutritional supplements, immunization against common infectious diseases, and early treatment of certain conditions such as diarrhea has reduced the mortality rate of children 1-3 to less than one half that in the control villages (from 24.1 per thousand to 9.9 per thousand)*. The obstetrical program, on the other hand, has had no measurable effect on perinatal and neonatal mortality*. This probably reflects a situation in which normal deliveries are handled reasonably well by villagers without outside aid, but complicated deliveries require services not readily available to an FHW in a village.

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*See final report to the Indian Council of Medical Research on the Nutrition Project (March, 1972).

(Patients however are referred to existing hospital facilities in the study area when this is indicated). Family planning practice rates are only slightly higher in those villages where FP is combined with women's services alone (see section on Family Planning Acceptance and Practice), and functional analysis has shown that this modest increase may relate to the increased time which the workers in these villages are able to spend on FP services (see section on Functional Analysis).

Several tentative conclusions might be drawn from this information. As suggested above, it could be recommended that women's services, particularly obstetrical care, be kept at a simple level which could be carried out by a locally recruited and trained village workers with intermitent supervisory visits by someone with more formal medical training. The impact of this change might have on family planning acceptance would certainly have to be measured. On the other hand, one could conclude either to eliminate health services altogether (providing FP only), or to combine FP with child care. Neither of these latter choices seems likely in view of the tremendous popular demand for women's health services, but in any event the final analysis of the five year experience at RHRC will make it possible to compare effects of any of these alternative programs as delivered under relatively optimal circumstances. Beyond this, it will be possible to compare the cost effectiveness of specific components of each service package so as to make rational recommendations for future programs.

Whatever these recommendations may be, it is clear that they must first be implemented on a trial basis in a situation which more closely resembles that existing in primary health centers throughout India - with realistic ratios of population to medical personnel and with elimination of the research work which occupies much of the time of workers in RHRC. This has always been the plan for development at Narangwal, and it has not been thought necessary to wait for completion of the Narangwal data processing to begin a larger scale program. Since 1971 RHRC has felt it was ready to develop a pilot demonstration project, providing complete care for one development block (A proposal for such a project was submitted to ICMR in July, 1972).

The present research objectives of the population project should be achieved in 1974. Between now and then it is expected that training activities at RHRC will increase, so that after 1974 its main function will be to serve as a training and research center for integrated health and family planning programs elsewhere in India.

PRESENT STATUS OF DATA PROCESSING

Data accumulating from the project's activities falls under three broad headings:

1) Baseline Surveys - An initial baseline survey was begun at the end of 1967 and completed in mid 1970. This survey was conducted by social scientist investigators (most with Masters degrees) and consisted of census; pregnancy history; knowledge, practice, attitudes and beliefs regarding family planning; and a socioeconomic survey. A second round of surveys (Resurvey) was carried out from July 1971 to June 1972.

2) Longitudinal Surveys - Ongoing collection of data on morbidity, anthropometry (weight and height-for-age of children 0-3), fertility, and vital events. This ongoing data collection is carried out by the village family health workers (FHWs) through their monthly or bi-monthly visits to the homes of women 15-49 and children 0-3. Vital events are collected from three sources - FHW's, special vital statistics investigators, and the village chowkidars.

3) "Functional Analysis" data, consisting of work sampling information and service record analysis. These data are currently collected processed and analyzed by the functional analysis group, a separate organization within RHRC.

A very large number of punch cards accumulates as a result of processing these data:

Baseline and Resurveys

Census	:	30,000	forms	30,000	punch cards
Pregnancy History	:	5,000	"	20,000	" "
Knowledge & Practice	:	5,000	"	5,000	" "
Attitudes & Belief	:	5,000	"	10,000	" "
Socio-economic	:	4,000	"	4,000	" "

(Total: 69,000 till now)

(Resurvey data contributes another 15000 forms and 30,000 cards. Recensus and re-survey on pregnancy history are only updating operations and a punch card is created only when there is a 'vital' change.)

Longitudinal Data

Fertility	:	5,000	forms	60,000	cards (By Dec.)
Vital Statistics	:	6,000	"	6,000	"
Morbidity	:	40,000	"	200,000	"
Anthropometry	:	1,500	"	30,000	" (By Dec.)

(Total: 206,000 till now)

Functional Analysis

Work Sampling: 654 Obs. days - 125,000 Cards
(Total: 125,000 cards till now)
Total volume of data as of July 1, 1972 was about 400,000 cards.

In July 1971 only 50,000 of these cards had been punched. The others were in various stages of being coded. A major effort has been made this year to eliminate this backlog, so that coding, punching, taping and tabulating data can be put on an ongoing basis. All of the first round baseline survey data is now on tape, some tables have been prepared, and most of the clean up operations on this survey are completed. The resurvey was completed July 1, and a major part of it (the pregnancy history) has been coded and punched. The recensus will be completed in September. Resurvey KP-AB (knowledge, practice, attitudes, beliefs) will be coded and punched in December. Taping and analysis of this data will take place as soon as possible since the census breakdown by age and sex is needed to calculate comparative fertility and mortality rates between the cohorts. (Rates cited in this report have been hand tabulated, for the most part)

The situation with the ongoing surveys is as follows:

- all morbidity data through December 1971 has been put on tape, analysis has begun.
- anthropometric data for 1/3 of the population has been coded and taped, the remainder will be on tape in 3 months time.
- all fertility data through Oct. 1972 will be coded, punched and taped by Dec. 1972.
- vital events data upto 1972 has been coded and taped. Tables are included in the section on vital events and reproductive patterns. Births and death rates for the overall population have been calculated. As soon as the detailed population data from the second census is available it will be possible to calculate some of the more sensitive indices of fertility (e.g. - age, specific fertility rates and high parity birth rates).
- data processing in the functional analysis section is on an ongoing basis with the summary tabulations of all the work sampling data to be completed by October 1972. Service records are in the process of being coded.

Arrangements have been made for the use of computer facilities in Delhi, so that the majority of the data analysis can now be conducted in India. Statistical package programs have been obtained, and one of our Statistician-programmers is trained in their use.

Jain
24.8.73

CHAPTER ONE

FAMILY PLANNING SERVICES AND RESULTS

SUMMARY

1. Family planning services are delivered at the village level by one female worker in each village and one male worker for four villages. Their approach has been "low-key", offering family planning services, but not using pressure or any incentives. Multiple methods have been made available to acceptors. Followup has been carefully routinized and supervised. During the past year a systematic approach using defined "entry points" linking family planning to health care delivered by the same worker has been introduced.

2. Acceptance and practice of family planning has increased substantially in all villages into which family planning has been introduced. Up to this time however inter-cell comparisons show little differences. On the contrary large inter-village differences need explanation. Because of difficulties with data collection, comparison with control villages has not been accomplished yet. Details concerning acceptance, practice, change, dropouts and reasons for dropouts are presented.

PART I: DELIVERY OF FAMILY PLANNING SERVICES

At the village level a team of two workers are responsible for providing family planning services in each of the experimental villages: 1) the Family Health Worker (FHW), in-charge of the village sub-center, and 2) a Male Family Planning Worker (FPW) responsible for educating the men of four village communities about the different aspects of family planning. The FPW also assists the FHWs in the organization and delivery of family planning services. FHWs are supervised by the medical care team - Family Health Supervisors, Public Health Nurses and Physician - while FPWs work under the supervision of a Social Scientist.

Characteristics of the RHRC Family Planning Approach

The RHRC approach to family planning has essentially been a low-key approach based upon individual contacts. A potential acceptor is offered a choice of several F.P. methods and their advantages, disadvantages and side effects are discussed. No pressure tactics and no money incentives, either to the acceptor or to the motivators, are used to promote family planning. No targets are assigned to FHWs and FPWs nor are campaigns held. Proper screening and follow-up are our two most essential ingredients of the low-key approach. Suggestions for adopting a method other than the one

initially chosen by the acceptor are made only under specific medical and social conditions. For instance acceptors who do not have at least two sons are discouraged from getting sterilized. This decision was based upon the findings of our baseline survey on attitudes and beliefs towards family size which revealed that there was an overwhelming preference for at least two sons. Similarly because of early doubts about the reversibility of an injectable contraceptive (Depo-provera), acceptors in younger ages and/or low parity groups are discouraged from using it either for spacing or for limitation.

Family Planning Methods

The contraceptive methods available to all potential acceptors include disposable condoms; foam tablets; diaphragm and spermicidal cream; pills; injectable depo-provera; intra-uterine contraceptive devices (Lippes Loop 27.5 mm and Narangwal 'Taviti' IUCD); and sterilization of both males and females. Acceptors opting for permanent methods are referred to cooperating hospitals at the district headquarters for operations.

Followup of Family Planning Acceptors

Schedules for followup visits by the FHW vary according to method as follows:

1) IUCD - Followup at one week post insertion, one month post-insertion, three months post-insertion and thereafter at intervals of four months coordinated with the Fertility Survey. At each visit an enquiry is made whether the patient can still feel the loop in position and whether or not there are any cramps or bleeding.

2) Pills - Followup at monthly intervals for three months and thereafter every two months at the time of the Fertility Survey. Two months supply are dispensed at a time and enquiry is made about the woman's menses.

3) Depo-provera: Monthly followup for three months and then every three months thereafter at the time of repeating the injection (in the clinic). In addition enquiry into menstrual history is made at the time of the Fertility Survey. Estrogen tablets are dispensed on either of these occasions to be used to induce monthly withdrawl bleeding.

4) Conventional Contraceptives: Two monthly followup and enquiry are made at the time of the Fertility Survey. Supplies are dispensed at that time by the FHW. Alternatively the FPW gives supplies on his routine visits.

5) Sterilization: Post operatively, when the patient returns to the village, frequent visits are made and dressings changed until the wound is healed.

PART II: FAMILY PLANNING ACCEPTANCE AND PRACTICE

Family planning services were introduced in the various cells of the project according to the schedule presented in Table 1.1. In all villages the health service package (WS, CC, or WS+CC) had been in existence for several months or (in the case of CC) years before FP services began. Until January 1972 FHWs and FPWs were instructed to introduce the subject of family planning in the course of their routine work, using their own judgement as to the appropriate time to bring it up for discussion. Certain points in the reproductive cycle were emphasized, particularly the time before and after delivery. In January 1972 this intuitive approach was replaced by an attempt to systematically identify points in the FHW's practice of maternal and child care at which the subject of family planning should be raised (See chapter 4 for details).

Table 1.2 shows the total number of acceptors, drop outs and practitioners of family planning upto March 31, 1972 in each village. Fig. 1.1a and 1.1b summarizes in bar graph form the number of individuals accepting or using FP after starting RHRC FP service in each village.

Because of variation in the time at which services were introduced, it is important to take the duration of services into account. Figure 1.2 shows the increase in percent practitioners over a period of time. Figure 1.3 compares the CC+WS+FP cell (Pakhowal) with the WS+FP cell (Maloud) in respect to both acceptance and practice for the full time in which FP services have been in effect. There is greater acceptance and practice, at any given time, in the WS only cell, although this difference is not large. In the case of WS only, functional analysis has shown that a much larger proportion of time is devoted to FP. Also during baseline altitudinal surveys the WS only villages had a larger number of women favourable to F.P. In any event, the difference in FP practice between CC+WS and WS alone at 39 months is not great - 29% versus 33% respectively. There is a definite tendency for the increase in practitioners to level off at a out 15 months, while overall acceptance continues to rise - in other words drop outs are roughly equal to new acceptors. This suggests possibly that spontaneous demand for FP services has been satiated at this point. Long term analysis of these trends will be required to see whether the programs offered can produce a further increase in demand over a five year period.

Table 1.1

DATE FAMILY PLANNING SERVICES WERE INTRODUCED INTO RHRC VILLAGES AND DURATION OF THESE TO MARCH 1972

Cell	Village	Date of introducing F.P.	Duration of F.P. services (in months)	
CC+WS+FP	Ballowal	Jan. 69	38	
	Dhaipee	Feb. 69	37	
	Chaminda	Mar. 69	36	Average duration =35.0
	Dolon Kalan	Oct. 69	29	
WS+FP	Sekha	Feb. 69	37	
	Chomon	Mar. 69	36	
	Uksi-Dudhal	Apr. 69	35	Average duration =33.0
	Kishanpura	Mar. 70	24	
CC+FP	Mansuran	Feb. 71	13	
	Rattan	Feb. 71	13	Average duration =12.7
	Saya	Mar. 71	12	

CC= Child Care Services, WS= Women's Services, FP=Family Planning Services

Table 1.2

ELIGIBLE COUPLES, ACCEPTORS, TOTAL ACCEPTANCE, DROP-OUTS, CHANGE AND PRACTITIONERS OF FP METHODS IN RHRC EXPERIMENTAL VILLAGES (ANALYSIS UPTO 31ST MARCH 1972)

Village	No.of eligible couples (a)	Total No.of Acceptors (b)	Total acceptance (c)	Drop-outs (d)	Change of method (e)	Practitioners (% out of b) (f)	Practitioners (% out of a) (g)
CC+WS+FP(Pakhowal Area)							
Ballowal	194	81 (41.8)	98	44 (44.9)	37 (17.3)	37 (37.8)	37 (19.1)
Chaninda	221	106 (47.9)	123	42 (34.1)	16 (13.0)	65 (52.8)	65 (29.4)
Dhaipee	249	134 (53.8)	170	35 (20.6)	36 (21.2)	99 (58.2)	99 (39.8)
Dolon Kalan	225	76 (33.8)	90	16 (17.8)	14 (15.6)	60 (66.7)	60 (26.7)
TOTAL	889	397 (44.7)	481	137 (28.5)	83 (17.3)	261 (54.3)	261 (29.4)
WS+FP(Maloud Area)							
Chomon	185	77 (41.6)	90	25 (27.8)	6 (6.7)	59 (65.6)	59 (31.9)
Sekha	175	86 (49.1)	105	29 (27.6)	14 (13.3)	62 (59.1)	62 (35.4)
Uksi-dhdhal	312	118 (37.8)	143	35 (24.5)	22 (15.4)	86 (60.1)	86 (27.6)
Kishanpura	108	64 (59.2)	74	11 (14.9)	10 (13.5)	53 (71.6)	53 (49.1)
TOTAL	780	345 (44.2)	412	100 (24.3)	52 (12.6)	260 (63.1)	260 (33.3)

Table 1.2 - continued

Village	(a)	(b)	(c)	(d)	(e)	(f)	(g)
CC+FP							
Mansuran	333	117 (35.1)	131	20 (15.3)	11 (8.4)	100 (76.3)	100 (30.0)
Rattan	85	34 (40.0)	40	11 (27.5)	3 (7.5)	26 (65.0)	26 (30.6)
Saya	249	89 (35.7)	100	22 (22.0)	11 (11.0)	67 (67.0)	67 (26.9)
TOTAL	667	240 (36.0)	271	53 (19.6)	25 (9.2)	193 (71.2)	193 (28.9)
FOR ALL VILLAGES	2336	982 (42.0)	1164	290 (24.9)	160 (13.7)	714 (61.3)	714 (30.7)

Note: For b and g percentages are calculated out of a (Total No. of eligible couples).

For d and e percentages are calculated out of c(Total acceptance).

Figure 1.1 (a)

NEW ACCEPTORS AFTER STARTING RHRC F.P. SERVICES
(Percentage of Eligible couples)

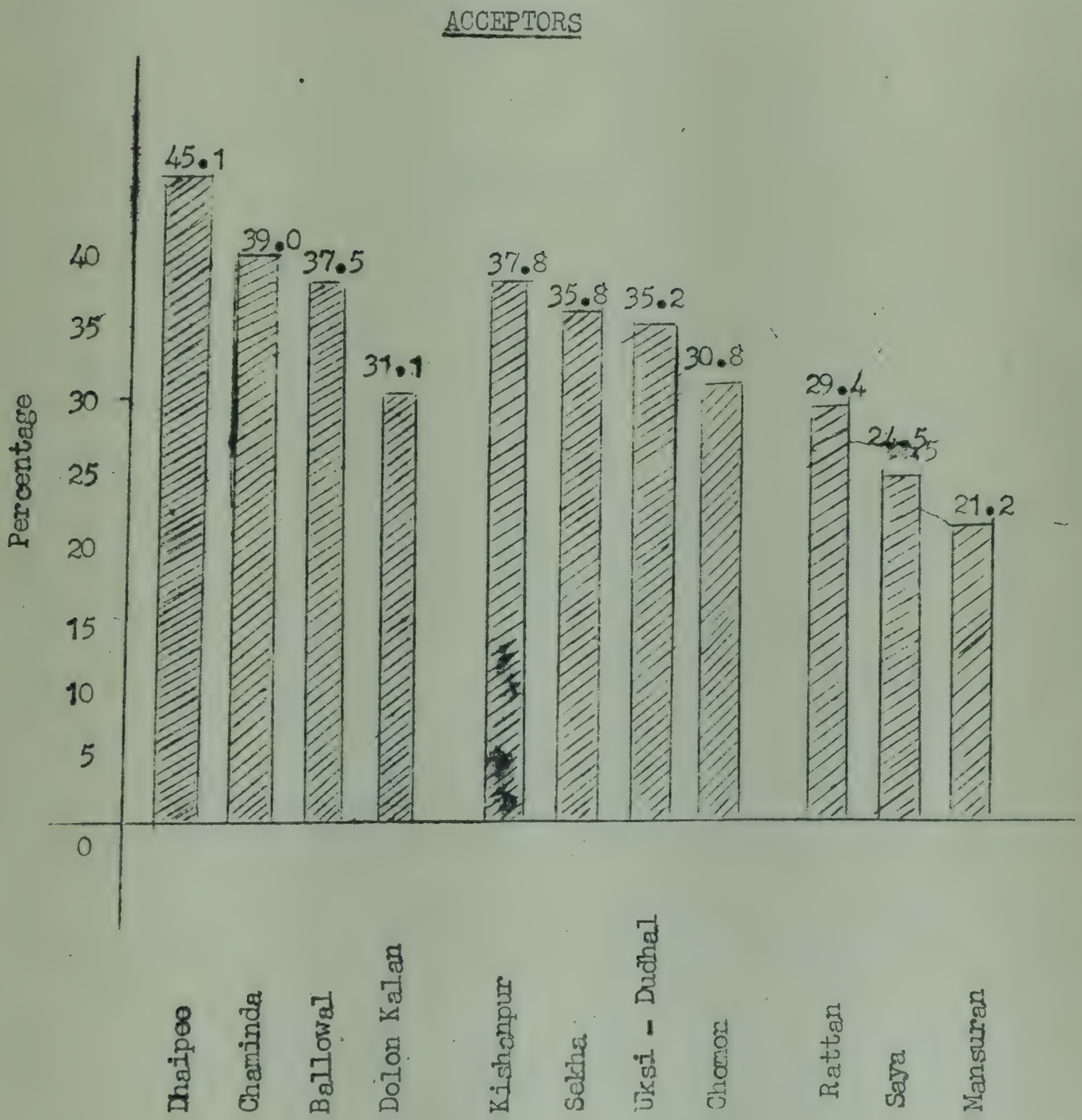


Figure 1.1 (b)

NEW PRACTITIONERS AFTER STARTING RHRC F.P. SERVICES
(Percentage of Eligible couples)

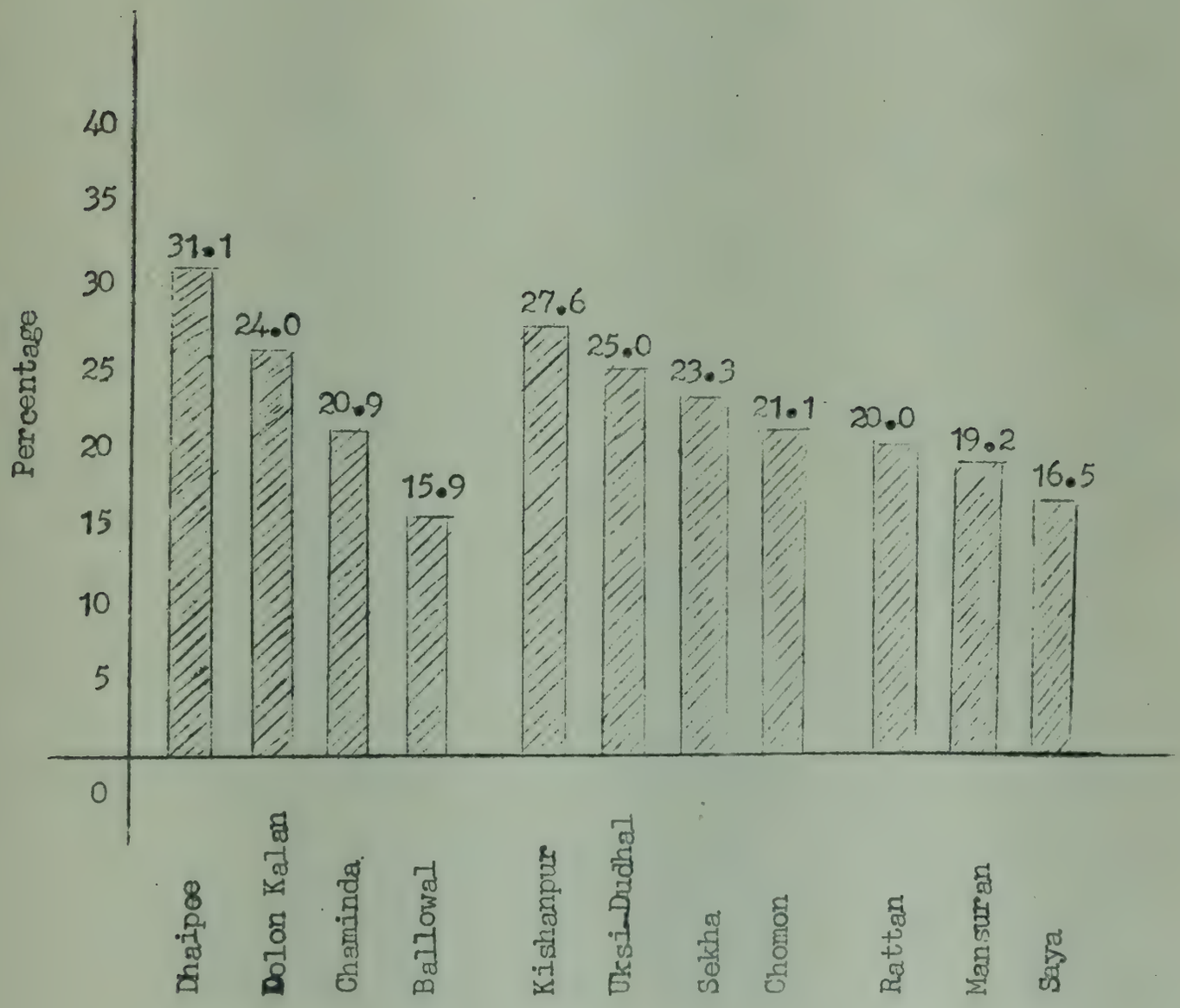


Figure 1.2

F.P. PRACTITIONERS BY DURATION OF SERVICES

(Percent of Eligible Couples)

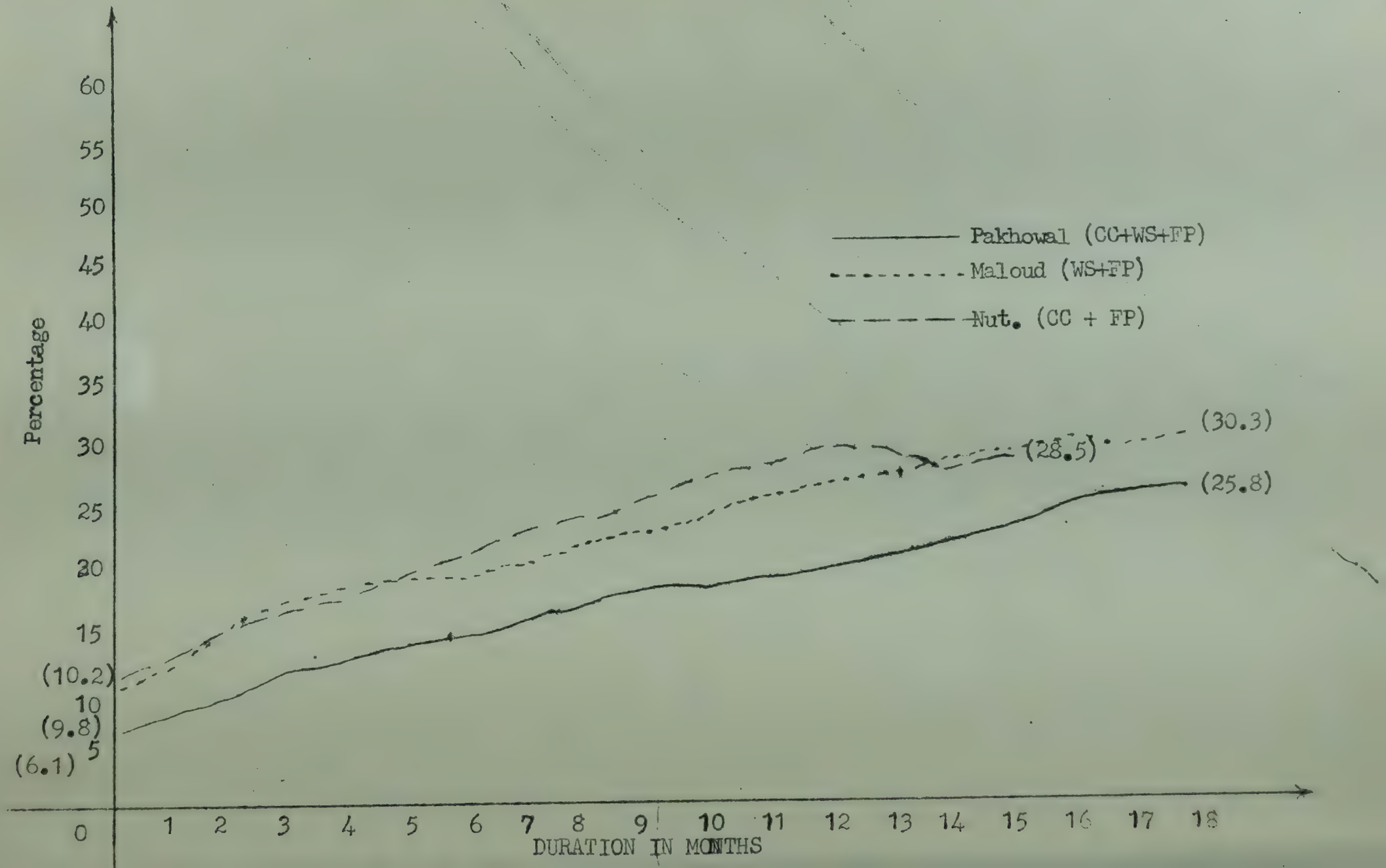


Figure 1.3

ACCEPTORS AND PRACTITIONERS IN CC+WS+FP AND WS+FP AREAS

(Percent of Eligible Couples)

There is considerable difference in the level of family planning acceptance between villages in the same cohort, much greater than the difference between cohorts. Figures 1.4 to 1.14 show the monthly increments in acceptance and practice by villages. These differences have been shown to correlate significantly with initial levels of acceptance and turnover rates of FHWs. Other variables that might account for village difference are being studied.

Very few eligible couples received family planning assistance outside of RHRC sub-centers as can be seen in Table 1.3. Table 1.4 and Figure 1.15 summarize acceptance and practice rates among 982 couples accepting 1164 different family planning methods. Condoms were the most popular method, with Depo-Provera injections, second, and oral pills last. Drop outs and change of method were high for both pills and injections. Drop outs among loop users were rather low (15% dropped out and 16% changed methods).

Table 1.5, 1.6, 1.7 and 1.8 list the reasons for drop outs from the various methods. Of the total Depo-provera acceptors, 48.7% stopped. The main reason (39.3% of the total response) for drop-out was excessive bleeding, while 12.0% of the acceptors wanted to use some permanent methods. Ammenorhea was observed in 9.4% of the cases and 11(8.6%) of the users who dropped did not specify any reasons.

Of the 420 condom acceptors, 182(43.3%) either completely dropped or changed to other family planning methods. The two most important reasons are that either the wife became pregnant or they wanted to have a more reliable method. Forty four (26.8%) of the women conceived, the reason may be irregular use or the failure of method. Seventeen (9.4%) did not specify any reason either for drop-out or change.

In all, 115 people accepted oral pills in RHRC villages, the majority (60 acceptors) were from the Pakhowal area. Of the total acceptors 90 (78.3%) stopped the use. The proportion of acceptors who dropped out in Pakhowal and Malaud area is almost the same. Twelve (16.7%) acceptors dropped because they wanted to have another child. Eleven (15.3%) discontinued because they became pregnant and an equal number could not be followed, mainly because they left the area. Bleeding as a reason for drop-out was only in 11.1% of the users.

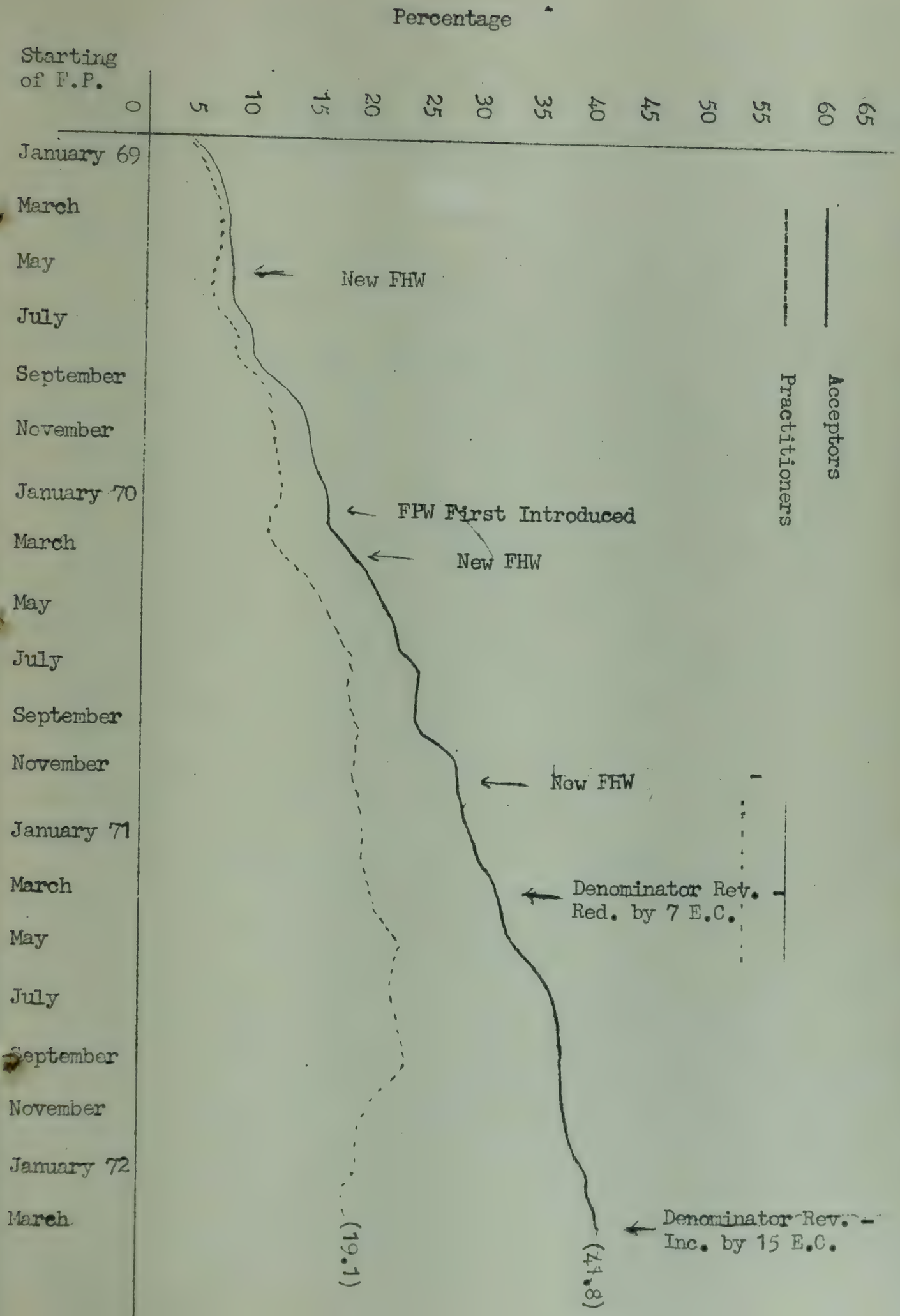
Of the total 982 acceptors, 167 accepted loop either to space the birth of their children or to limit their family size. Of the total acceptors 31.1% dropped out. Spontaneous expulsion (52.3% of drop outs) is the most important reason for dropout. 29.5% of the acceptors dropped out because of excessive bleeding. Eight (15.4%) acceptors did not specify any reason for drop-out or change. Table 1.8 shows reasons for drop-out or change. The loop as a contraceptive device is almost equally popular in CC+WS+FP and WS+FP cells (Table 1.4).

Figure 1.4

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN DHAIPEE (WS+CC+FP)

Figure 1.5

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN BALLOWAL (WS+CC+FP)



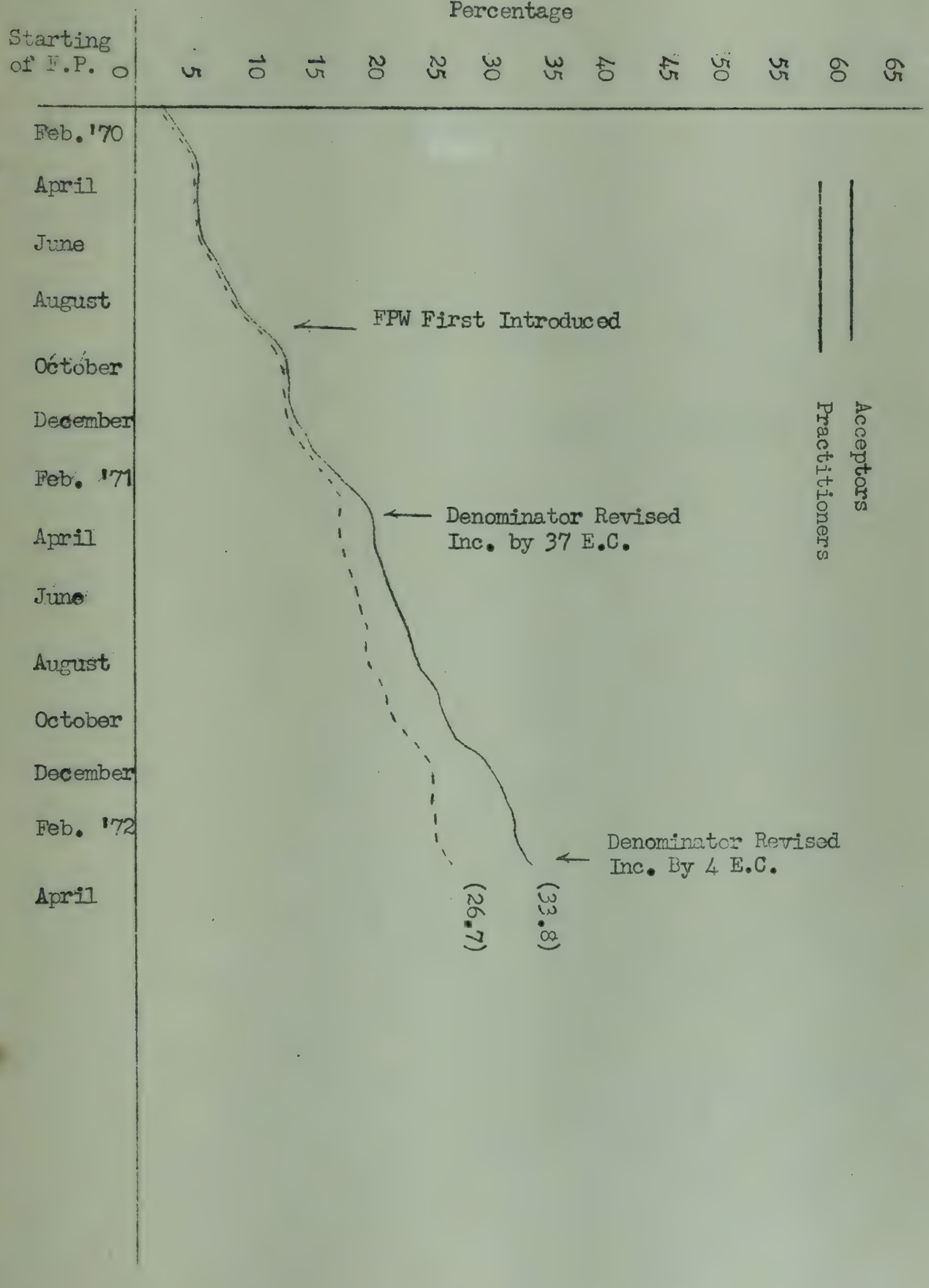


Figure 1.6

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN DOLON-KALAN (WS+CC+IP)

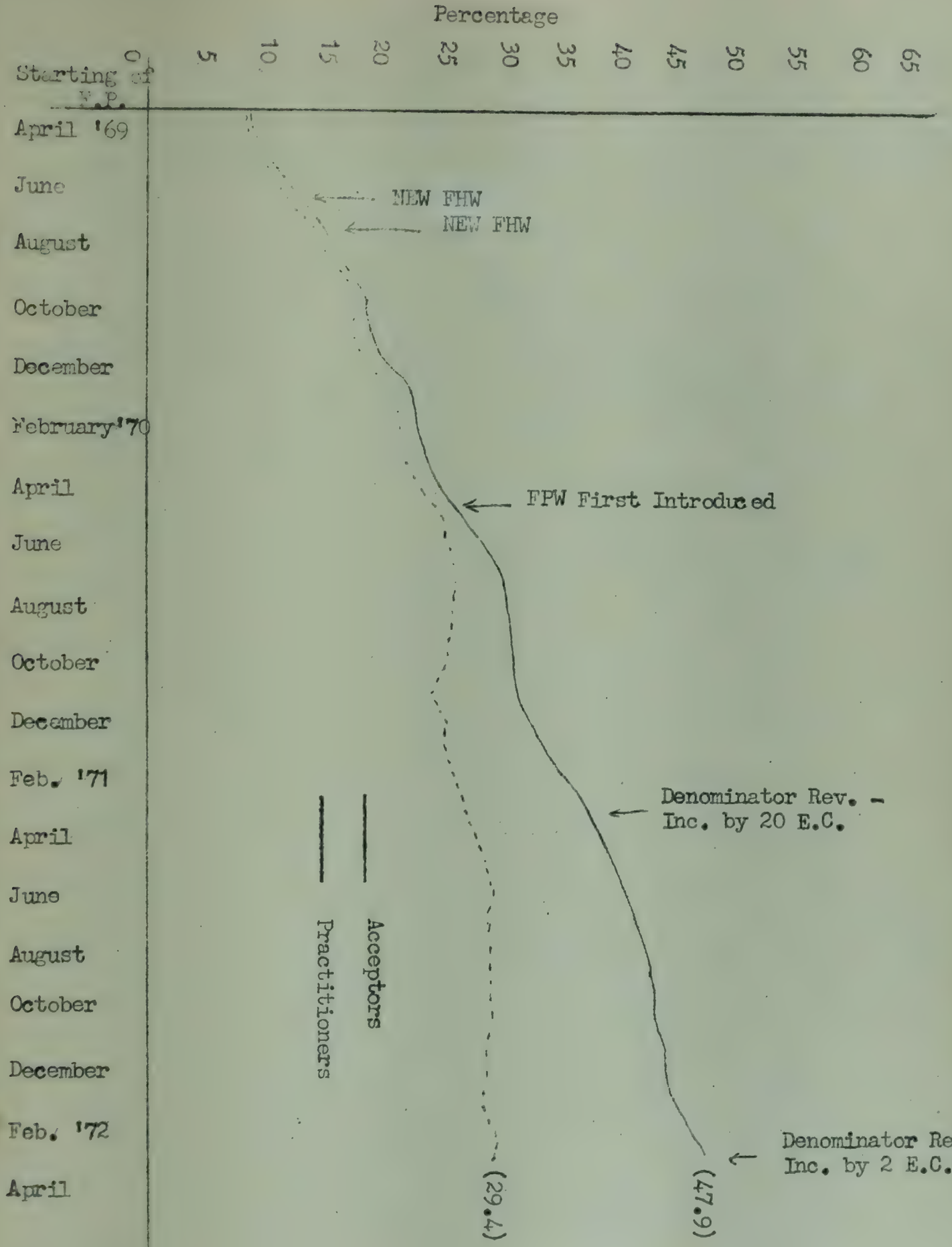


Figure 1.7

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN CHAMINDA (WS+CC+FP)

Figure 1.8

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN KISHANPURA (WS+FP)

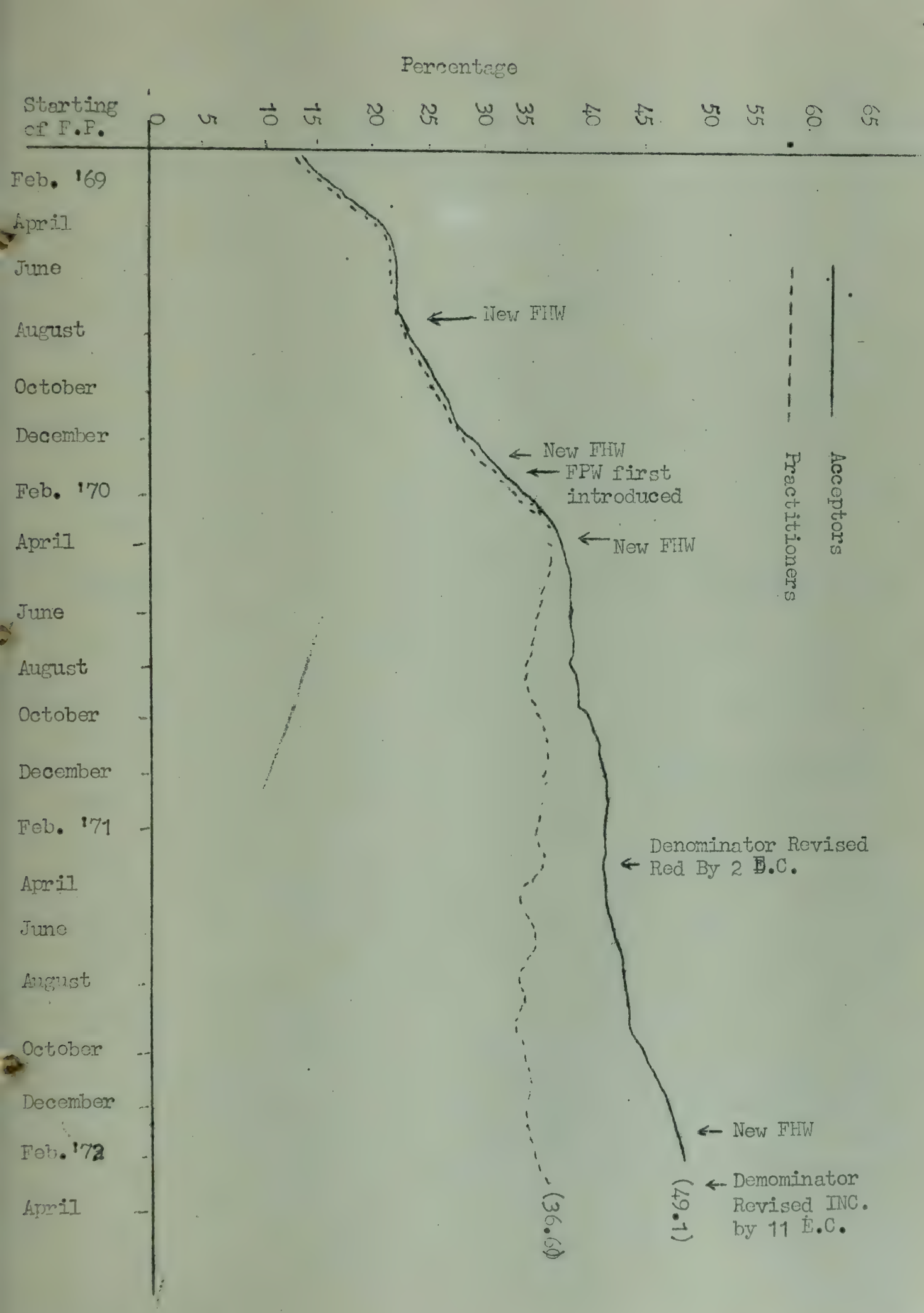


Figure 1.2

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN SEMI's (WS+FP)

Jain/23.8.73

Figure 1.10

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN CHOMON (WS+FP)

Figure I.11

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN UKSI-DUDHAL (WS+FP)

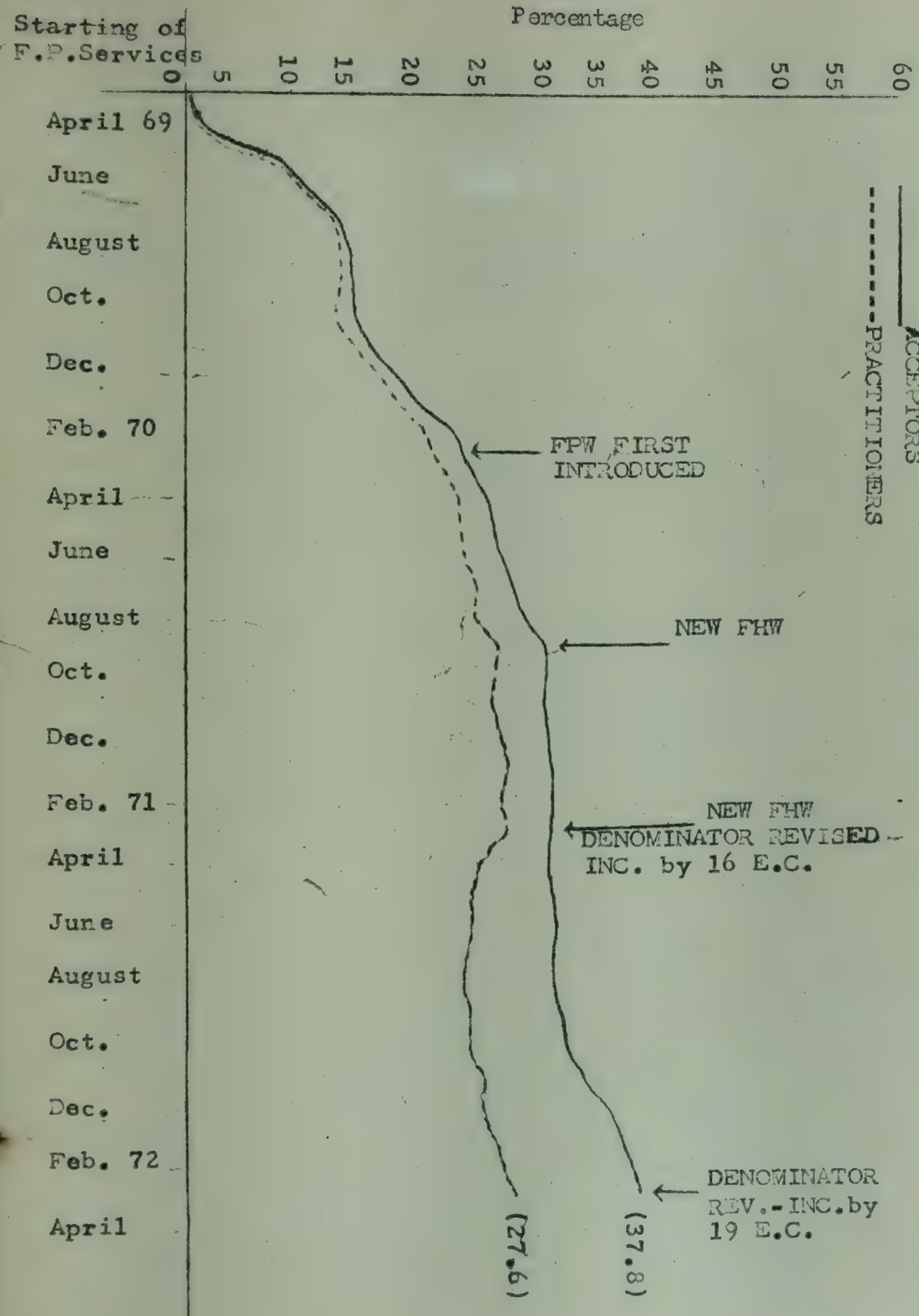
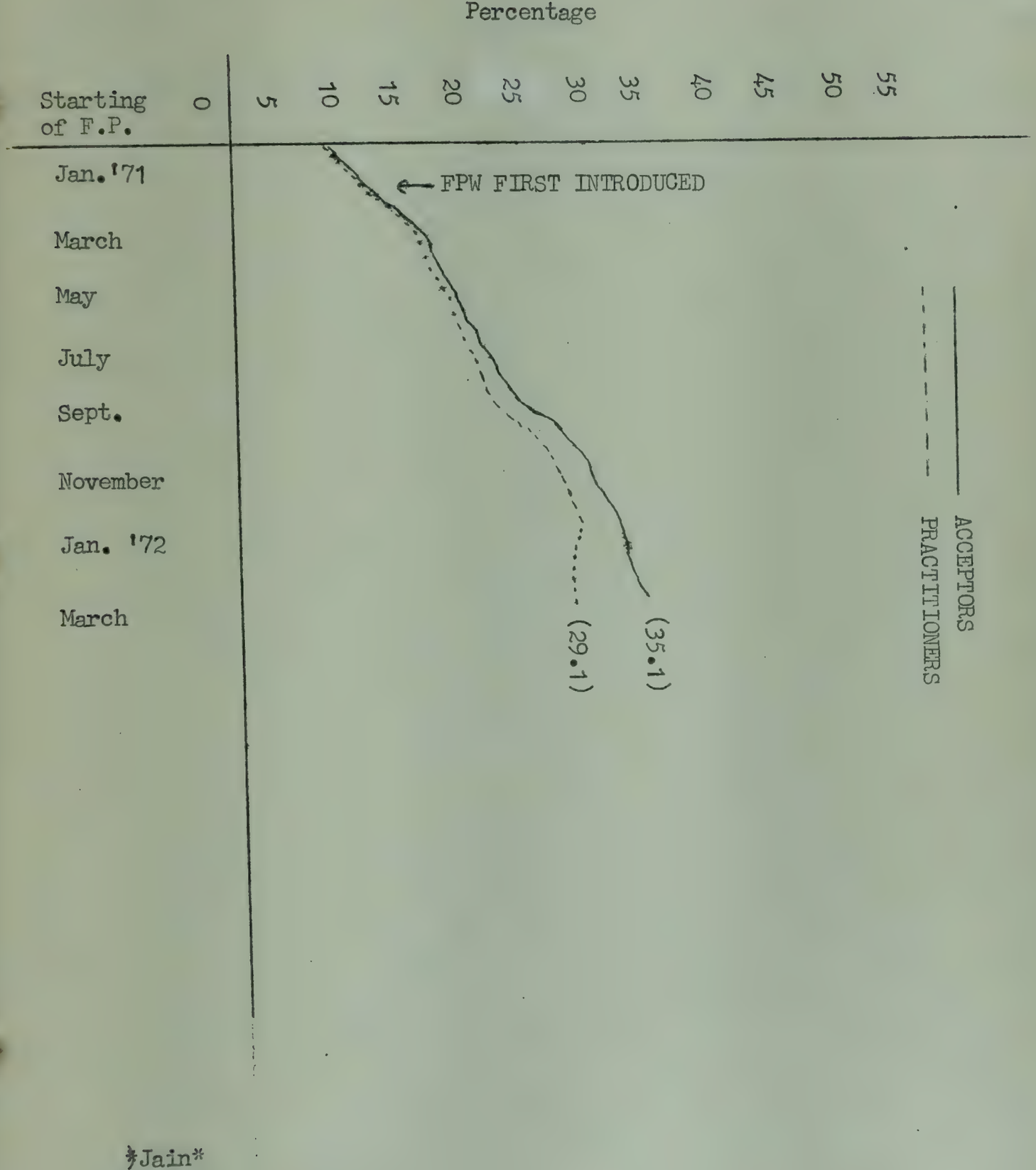


Figure 1.12

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN MANSURAN (CC+FP)



Jain
30.8.73

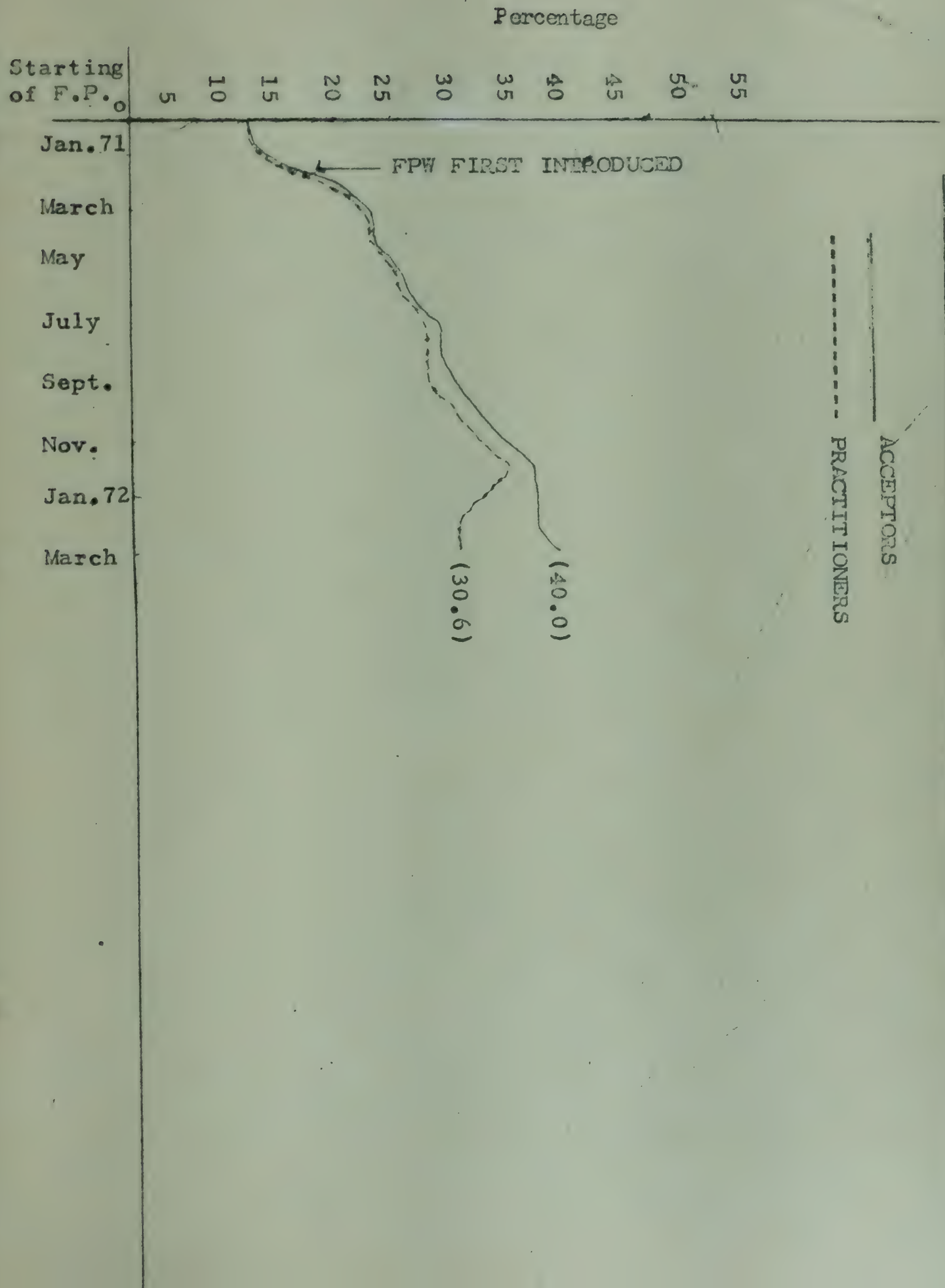


Figure 1.13

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS BY MONTHS IN PATTAN (CC+FF)

Figure I.14

GRAPH SHOWING ACCEPTORS AND PRACTITIONERS - 7 MONTHS IN SAYA (CC+FP)

Table 1.3

Table showing utilization of other than RHRC sub-centers for family planning services, after starting F.P.services in the village. (Analysis upto 31st March 1972).

Cohort	Acceptance through RHRC	Acceptance through other sources.
Pakhowal Area		
CC+WS+FP	95.4	4.6
Malaud Area		
WS+FP	94.5	5.5
Nut. Area		
CC+FP	95.5	4.5
For all villages	94.5%	5.5%

Table 1.4

Acceptance, practice, drop out and change of F.P.methods in RHRC experimental villages (Analysis upto 31st March 1972)

Area	FAMILY PLANNING METHODS																	
	Loop				Injections				Oral pills				Condom				Va-sy	Tu-by
	A	D	C	P	A	D	C	P	A	D	C	P	A	D	C	P		
Pakhowal CC+WS+FP	82 (17.0)	17 (20.7)	15 (18.3)	50 (61.0)	118 (24.5)	36 (30.5)	15 (12.7)	67 (56.8)	60 (12.5)	24 (40.0)	25 (41.7)	11 (18.3)	165 (34.3)	60 (36.4)	28 (17.0)	77 (46.7)	16 (3.3)	40 (8.3
Maloud WS+FP	78 (18.9)	5 (6.4)	11 (14.1)	62 (79.5)	102 (24.8)	47 (46.1)	13 (12.7)	42 (41.2)	29 (7.0)	17 (58.6)	7 (24.1)	5 (17.2)	131 (31.8)	34 (26.0)	19 (14.5)	78 (59.5)	38 (9.2)	34 (8.3
NUT CC+NS+FP	7 (2.6)	3 (42.9)	1 (14.3)	3 (42.9)	43 (19.8)	14 (32.6)	3 (7.0)	26 (60.5)	26 (9.6)	8 (30.8)	9 (34.6)	9 (34.6)	124 (45.8)	28 (22.6)	12 (9.7)	84 (67.7)	42 (15.5)	29 (10.7
Total	167 (14.3)	25 (15.0)	27 (16.2)	115 (68.9)	263 (22.6)	97 (36.9)	31 (11.8)	135 (51.3)	115 (9.9)	49 (42.6)	41 (35.7)	25 (21.7)	420 (36.1)	122 (29.0)	59 (14.0)	239 (56.9)	96 (8.2)	103 (8.8)

A Stands for Acceptance (ever use)
D " " Drop out
C " " Change of methods
P " " Practice (Current use)

For acceptance (A) percentages are calculated out of el
(Currently married between 15-49 years)

For drop-out change and practice (D, C and P) percentage
out of acceptance(A)

Figure 1.15

ACCEPTANCE, PRACTICE, DROP-OUT AND CHANGE OF METHOD-
1164 EVER USERS.
(From Table No.1.4)

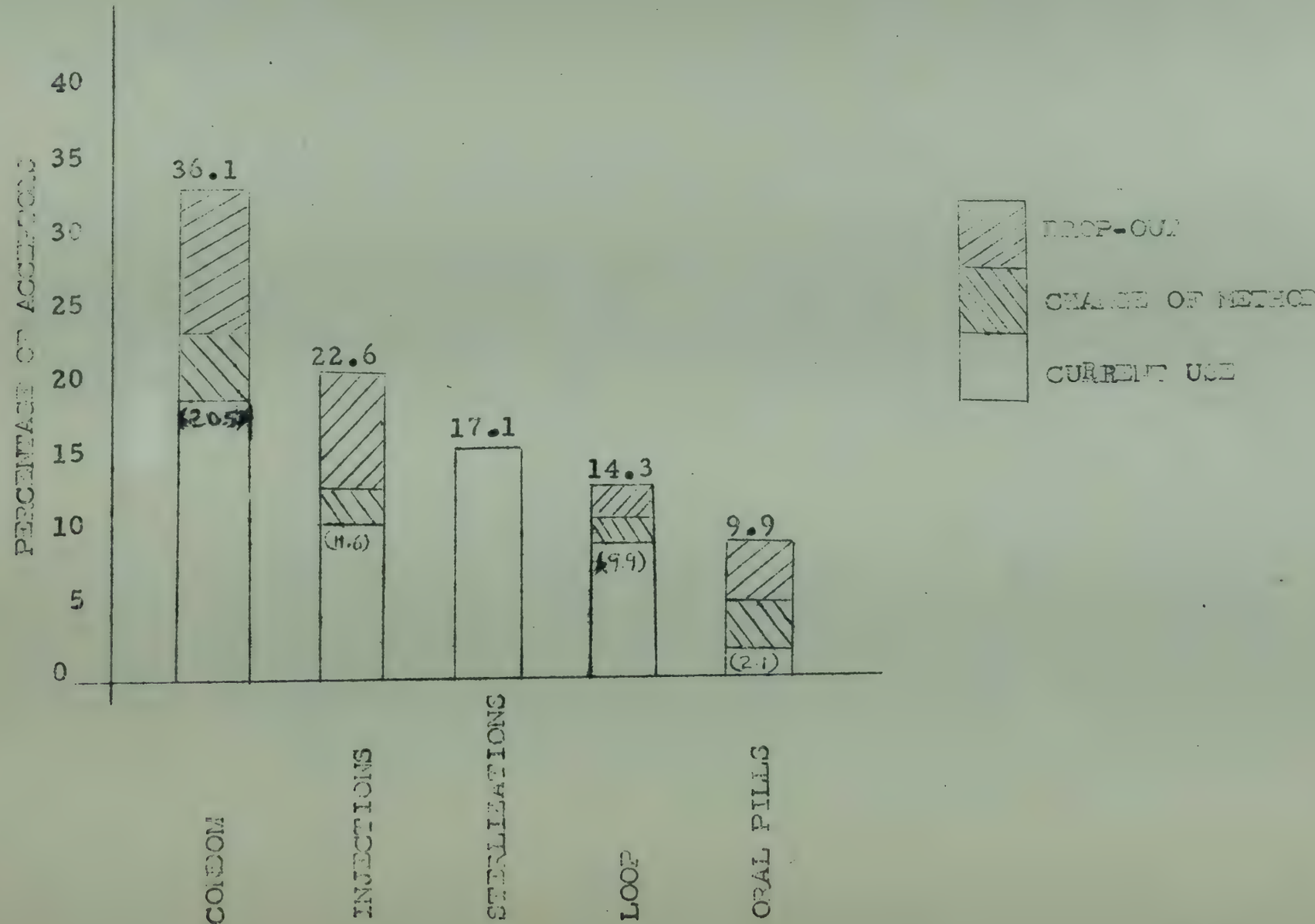


Table 1.5

Table showing reasons for drop-outs and change of method (Analysis-upto 31st March, 1972)

METHOD = INJECTION

Reasons	Pakhowal (CC+WS+FP)	Maloud (WS+FP)	Nut. (CC+NS+FP)	Total (No. %
1. Excessive bleeding	20	21	5	46(39.3)
2. Changed to permanent methods	4	8	2	14(12.0)
3. Ammenorhea	1	10	0	11(9.4)
4. Loss of follow-up	5	3	1	9(7.7)
5. "Hot"feelings	1	2	1	4(3.4)
6. Pregnancy	-	3	0	3(2.6)
7. Wanted another child	2	1	0	3(2.6)
8. Wrong L.M.P.	3	0	0	3(2.6)
9. Husband objected	3	0	0	3 (2.6)
10. Husband/wife expired	1	1	0	2(1.7)
11. Illness of child in the family	1	1	0	2 (1.7)
12. Fear of side effects	2	0	0	2(1.7)
13. Weight gain	0	2	0	2 (1.7)
14. Abdominal distension	0	1	1	2 (1.7)
15. Death of the child	0	1	0	1(0.9)
16. Feeling of wakness	1	0	0	1(0.9)
17. Irregular periods	0	0	1	1(0.9)
18. Chronic illness	0	1	0	1(0.9)
19, Milk-supression	0	1	0	1(0.9)
20. Absess	0	1	0	1(0.9)
21. Numbness	0	1	0	1(0.9)
22. Fits	0	1	0	1(0.9)
23. Menopaused	0	1	0	1(0.9)
24. Already vasectomised	9	1	0	1(0.9)
25. Never used	1	0	0	1(0.9)
26. Reasons not specified	6	0	5	11(8.6)
Total acceptors	118	102	43	263
Total Drop or Change	51(43.2)	60(58.8)	16(37.2)	123(42.7)

Note: Percentages in brackets.

Table 16

Table showing reasons for drop-out and change of method (Analysis upto 31st March '72)

METHOD = CONDOM

Reasons	Pakhowal (CC+WS+FP)	Maloud (WS+FP)	Nut (CC+NS+FP)	Total
1. Became pregnant	24	5	15	44(26.8)
2. Changed to more reliable method	16	14	3	33(20.1)
3. Wanted another child	13	13	2	28(17.1)
4. Husband/Wife went out of vill.	10	5	6	21
5. Never used	11	0	2	13
6. Already pregnant	5	0	0	5
7. Gyn. problems	1	1	1	3
8. Sexual interference	0	2	0	2
9. Difficulty in disposal	0	1	1	2
10. Husband believes wife cannot conceive	0	2	0	2
11. Menopause	1	0	1	2
12. Disapproval by husband	0	2	0	2
13. Wife expired	1	0	0	1
14. Religious beliefs	1	0	0	1
15. Amenorhea	1	0	0	1
16. Menstrual trouble	0	1	0	1
17. 'Hot' feeling	0	0	1	1
18. Already F.P. acceptor	0	1	1	2
19. Reasons not specified	4	6	7	17(9.4)
Total acceptors	165	131	124	420
Total drop or change	88 (53.3)	53 (40.4)	40 (32.3)	181 (43.3)

Note: Percentages in brackets.

Table 1.7

Table showing reasons for drop-out and change of methods
(Analysis upto 31st March 1972)

METHOD = ORAL PILLS

Reasons	Pakhowal (CC+WS+FP)	Maloud (WS+FP)	Nut. (CC+NS+FP)	Total
1. Wanted a child	5	7	-	12(16.7)
2. Became pregnant	9	0	2	11(15.3)
3. Loss of follow-up	7	2	2	11(15.3)
4. Bleeding	4	3	1	8 (11.1)
5. Giddiness/Nausee	2	0	3	5 (6.9)
6. Changed to permanent or more reliable methods.	3	0	1	4 (5.6)
7. Difficult to take pills daily	3	1	0	4 (5.6)
8. Ammenorhea	0	2	0	2 (2.8)
9. 'Hot' feeling	3	0	0	3 (4.2)
10. Husband went out	1	1	0	2 (2.8)
11. Objection by husband	1	1	0	2 (2.8)
12. Irregular/scanty period	0	2	0	2 (2.8)
13. Enlargement of lever	0	0	1	1 (1.4)
14. Advised by doctor	1	0	0	1 (1.4)
15. Urinary disease	0	0	1	1 (1.4)
16. Never used	0	1	0	1 (1.4)
17. Itching on the body	1	0	0	1 (1.4)
18. Abdominal pain	0	1	0	1 (1.4)
19. Reasons not specified	9	3	6	18(20.0)
Total acceptors	60	29	26	115
Total drop or change	49 (81.7)	24 (82.8)	17 (63.4)	90 (78.3)

Note: Percentages in brackets.

Table 1.8

Table showing reasons for drop-out and change of method
(Analysis upto 31st March 1972)

METHOD = LOOP

Reasons	Pakhowal (CC+WS+FP)	Maloud (WS+FP)	Mut (CC+WS+FP)	Total
1. Spontaneous expulsion	17	4	2	23(52.3)
2. Excessive bleeding	8	5	0	13(29.5)
3. Pains	0	1	2	3(6.8)
4. Chronic illness	1	1	0	2(4.5)
5. Changed to permanent methods	2	0	0	2(4.5)
6. Fear of side effects	1	0	0	1(2.3)
7. Reasons not specified	3	5	0	8(15.4)
Total acceptors	82	78	7	167
Total drop or change	32 (39.0)	16 (20.5)	4 (57.1)	52 (31.1)

Percentages in brackets

Table 1.9, 1.10 and 1.11 examine the distribution of acceptors by the number of living children or sons. In Table 1.9 all acceptors are grouped by number of living children and compared with a similar distribution of all eligible couples. Table 1.10 separates the acceptors in each group by methods accepted. This illstrates the variation in method accepted depending on the number of living children present in the family. Condoms are obvicusly more popular among families with few children, while the other methods assume more importance aftertwo or three children. Table 1.11 is identifal to 1.10 except that acceptors are distributed by number of living sons.

No difference was noted between castes in the percent that became acceptors.

PART III: VALIDATION OF FAMILY PLANNING INFORMATION

Periodically we carry out repeatibility tests on the information of family planning acceptors submitted to us by our workers. Two repeatibility tests performed in 1971 showed that the information was 89.0% and 90.4% repeatible. In early 1972 instances of fabrication of data in one of the experimental villages become known. Consequently 100% of the "acceptors" in that village were checked and 50% of the acceptors in the remaining villages were similarly interviewed and examined. For all methods except condoms repeatibility was 100% in all villages aside from the one in which there was known to have been fabrication. Validation of "Practice" among condom users was slightly less than 75% when checked with one of the partners. Past experience has led us to believe that this percentage will be increased by at least 10% when we check with the other partner.

Table 1.9

Percentage distribution of eligible couples in total population and among family planning acceptors by the number of living children

No. of living children	Percentage in the total population			Percentage among F.P. acceptors		
	No.	%	Cumulative %	No.	%	Cumulative %
0	258	11.2	11.2	28	2.8	2.8
1	322	14.0	25.2	95	9.4	12.2
2	356	15.5	40.7	167	16.6	28.8
3	382	16.6	57.3	190	18.9	47.7
4	361	15.7	73.0	187	18.6	66.3
5	285	12.4	85.4	153	15.2	81.5
6	193	8.4	93.8	94	9.4	90.9
7	97	4.2	98.0	44	4.4	95.3
8+	46	2.0	100.0	24	2.4	97.7
Information not available	-	-	-	23	2.3	100.0
	2300		100	1005		100

* Whether they had children before? If not, why were they persuaded?

Table 1.10

Classification of the acceptors by the number of children they have at the time of first acceptance.

No. of children	Family Planning Methods							
	Loop	CCs.	Injection	Oral Pills	Vasy.	Tuby.	Total	C.%age
0	0 (0.0)	26 (92.9)	0	2 (7.1)	0	0	(2.8) 28 (100.0)	2.8
1	8 (8.4)	72 (75.8)	3 (3.2)	11 (11.6)	1 (1.1)	0 (0.0)	(9.4) 95 (100.0)	12.2
2	41 (24.3)	78 (46.2)	16 (9.5)	29 (17.2)	3 (1.8)	2 (1.2)	(16.6) 169 (100.0)	28.8
3	24 (12.4)	69 (35.8)	45 (23.3)	23 (11.9)	14 (7.3)	18 (9.3)	(18.9) 193 (100.0)	47.7
4	28 (14.8)	42 (22.2)	57 (30.2)	19 (10.1)	17 (9.0)	26 (13.7)	(18.6) 189 (100.0)	66.3
5	17 (11.0)	36 (23.4)	50 (33.5)	12 (7.8)	20 (13.0)	19 (12.3)	(15.2) 154 (100.0)	81.5
6	7 (7.4)	18 (18.6)	38 (40.0)	5 (5.3)	13 (13.7)	14 (14.7)	(9.4) 95 (100.0)	90.4
7	8 (17.8)	4 (8.9)	17 (37.8)	1 (2.2)	9 (20.0)	6 (13.3)	(4.4) 45 (100.0)	94.8
8	4 (16.7)	3 (12.5)	9 (37.5)	2 (8.3)	1 (4.2)	5 (20.8)	(2.4) 24 (100.0)	97.2
9	3 (15.8)	3 (15.8)	5 (26.3)	0 (0.0)	3 (15.8)	5 (26.3)	(1.9) 19 (100.0)	99.1
10	0 (0.0)	0 (0.0)	3 (60.0)	0 (0.0)	1 (20.0)	1 (20.0)	(0.5) 5 (100.0)	99.6
								1016
Information not available	20 (15.9)	62 (49.2)	20 (15.9)	9 (7.1)	10 (7.9)	5 (4.0)	126 (100.0)	
Date of acceptance not known	5 (22.7)	10 (45.5)	0 (0.0)	2 (9.1)	4 (18.2)	1 (4.5)	22 (100.0)	
Total	165 (14.2)	423 (36.3)	263 (22.6)	115 (9.9)	96 (8.2)	102 (8.8)	1164 (100.0)	

Table 1.11

Classification of acceptors by the number of living sons(At the time of first acceptance-Analysis upto 31st March 1972)

No. of living sons	Family Planning Methods						
	Loop	CCs s	Injection	Oral Pills	Vasy	Tuby.	Total
0	8 (8.0)	77 (77.0)	2 (2.0)	13 (13.0)	0 (0.0)	0 (0.0)	(9.8) 100 (100.0)
1	40 (15.9)	128 (51.0)	31 (12.4)	40 (15.9)	8 (3.2)	4 (1.6)	(24.7) 251 (100.0)
2	47 (15.4)	80 (26.1)	81 (26.5)	29 (9.5)	27 (8.8)	42 (13.7)	(30.1) 306 (100.0)
3	26 (13.1)	41 (20.7)	66 (33.3)	15 (7.6)	29 (14.6)	21 (10.6)	(19.5) 198 (100.0)
4	11 (11.1)	18 (18.2)	38 (38.4)	4 (4.0)	10 (10.1)	18 (18.2)	(9.7) 99 (100.0)
5	5 (11.4)	5 (11.4)	19 (43.2)	3 (6.8)	5 (11.4)	7 (15.9)	(4.3) 44 (100.0)
6	1 (9.1)	2 (18.2)	4 (36.4)	0 (0.0)	3 (27.3)	1 (9.1)	(1.1) 11 (100.0)
7	2 (28.6)	0 (0.0)	2 (28.6)	0 (0.0)	0 (0.0)	3 (42.9)	(0.7) 7 (100.0)=1016
Information not available	20 (15.9)	62 (49.2)	20 (15.9)	9 (7.1)	10 (7.9)	5 (4.0)	(10.8) 126 (100.0)
Date of acceptance not known	5 (22.7)	10 (45.5)	0 (0.0)	2 (9.1)	4 (18.2)	1 (4.5)	(1.9) 22 (100.0)
Total	165 (14.2)	423 (36.3)	263 (22.6)	115 (4.9)	96 (8.2)	102 (8.8)	1164 (100.0)

CHAPTER TWO

STUDIES OF VITAL EVENTS AND REPRODUCTIVE PATTERNS

Summary

1. Vital Statistics for the years 1969, 1970 and 1971 are presented from a total population of 28950 persons (1971-72 repeat census). Detailed analysis of this census will not be completed until September 1972, so that age specific fertility rates, etc. have not yet been calculated.

2. Data on vital events were gathered from 3 primary sources: project vital statistics investigators, project family health workers (ANMs) and village chowkidars records. They were supplemented by information from the fertility survey, deaths recorded in children born in 1969 or later, and morbidity survey forms. The relative efficiency of the 3 primary sources of information gathering is compared.

3. A crude-birth rate of 32/1000 is reported, a crude death rate of 12.5/1000, and a still birth rate of 56/1000 for both sexes. Four percent of children die within the first week of life, 5.6% before 1 month, and 11% before completing the first year.

4. Births to mothers not normally residing in the study villages (incoming births) comprised 26%, 28.7%, 28.8% of all live births in 1969, 1970 and 1971.

5. Seasonality of combined data for 3 years showed September as the peak month for births, with a majority occuring each year between June and November, corresponding with conception taking place from September to February.

6. Preponderance of male births for the 3 calendar years (120.5 to 100) suggested under reporting of female births especially in parities 1 to 3. (International experience shows a male preponderance of 105 to 107 male to 100 female births).

7. Distribution of births according to mother's parity and age has been calculated. A slight reduction was observed for the three years in the distribution of births by age and parity to mothers over 35 years of age, and to 4th para and above.

8. Data on 529 marriages taking place between October 1970 and December 1971 showed that brides marry at a higher age (19.25 years) than for all India, bridegrooms mean age at marriage was 21.75. The age difference was almost one half of that reported for average Indian couples. In 70% of marriages brides are sought from villages within a 15 miles radius.

9. Duration of p[illegible]tum amenorrhoea investigated in 707 women for whom completed duration of amenorrhoea were available showed that following live births, amenorrhoea persisted for 183.9 days, for 103.4 days after stillbirth, for 84.9 days after abortion. The duration was considerably longer among scheduled caste women (c.f. 171.76 days for Jats, 220.27 days for scheduled castes).

10. Maternal heights in women over 20 years were available in 2722 women. Jat women, who belong to a higher socioeconomic and possibly to a different ethnic group than Ramdasia women, are taller on the average by a little over 2 cms. (c.f. 156.3 cms: 154.3 cms.).

11. Duration of gestation: Among 890 completed pregnancies in which the date of the last menstrual period was recorded (prospective Fertility Survey), 22.7% terminated before the 37th week. No caste difference was shown.

12. Birth weight by gestational period: For each week of completed gestation beyond 37 weeks mean birth weights were greater than 2.75 kg. A significant increase in the incidence of birth weights below 2500 gms. was shown among Ramdasia mothers. During a six month period in which 90% recording of all birth weights was achieved weights below 2500 gms. were observed in 22% of babies.

13. Causation of perinatal death. Enquiry into 117 perinatal deaths established a probable cause in 103. Prematurity was associated in 44% and the chief cause in 17%, traumatic breech delivery 11%, intrauterine asphyxia following the use of Pituitrin in labour by local private practitioners 8%, and deaths following aspiration of spoon fed milk 8% (17% of all deaths in the first week of life) were shown to be the 4 chief causes of perinatal mortality.

Vital Statistics Sources and Data

Main Sources:

There are three main sources through which data on births and deaths in study villages are obtained:

1) The Vital Statistics Investigator (VSI) visits about 5-6 villages once every two weeks and contacts about 12 individuals in each village to learn about the vital events which took place since his last visit. The village barber, shopkeeper, teacher, elderly persons of the village are some of these "informants".

2) The family health worker (FHW) reports births and deaths and has access to the longitudinal fertility data which she collects by visiting all eligible women in the village once in two months. (This source of course is not available in villages where there are no services, i.e. the controls.)

3) The third main source is the traditional chowkidar records. The chowkidar is required to report all births and deaths which occur in the village irrespective of the normal place of residence. This source does not include births to residents of the village which occur outside the village.

Subsidiary Sources:

The three main sources mentioned above were not able to cover all events. The birth data of 1969 and 1970 indicated that the degree of coverage was not satisfactory especially with respect to resident births occuring outside the study area. This led us to examine the capabilities of other sources to improve the coverage of births. To accomplish this, three such sources, referred to hereafter as subsidiary sources, were used.

1. Birth Prospect Card:

The purpose of this card is to remind people concerned with V.S. data completeness about the outcome of a pregnancy conceived a few months earlier. The information required on this card is available on the longitudinal fertility form. Identification details, date of pregnancy, expected date of delivery are some of the items the birth prospect card contains. The card is made as soon as a pregnancy is suspected or confirmed for a woman. After the expected date of birth, usually 9 months from IMP, a search is made in the V.S. birth forms for the anticipated birth. When such a birth is not recorded in V.S., it is usually referred to the original fertility form of the mother for possible explanation as to what happened to that termination. If a woman goes for delivery to a place outside the study area the information confirming the birth is obtained from other family members in the village. The confirmation under some circumstances even waits until the mother comes back to the village after a few months. This source is used to update the birth data on a continuous basis.

2. V.S. Death Forms of Young Children:

The vital statistics death forms available for young children form another source to improve the coverage of births. This information is treated only as a clue and information on mother's length of stay in the study area etc. are used to confirm the birth.

3. Morbidity Survey Forms:

In villages where morbidity data is being collected on children under 3 years of age, (Nut project villages only) the birth dates available on the morbidity forms are used to check the birth reporting in V.S. system.

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On the basis of the information thus provided by the three subsidiary sources mentioned above, birth forms are created. The required information, as much as possible, is compiled from available surveys on mothers.

Local, Incoming and Outgoing Events:

Births occuring in the study area to mothers who are residents of the study area are termed as Local (L) births. Births occuring in study area to mothers whose normal place of residence is outside the study area are called Incoming (I) births. If mothers whose normal place of residence is the study area go outside the study area and give birth, these are called Outgoing (O) births. About 20% of women return to their maternal home for delivery, leading to large numbers of "Incoming" and "Outgoing" births.

Likewise deaths of new borns and infants are also labelled Local, Incoming and Outgoing depending on the place of occurrence and normal place of residence.

Obviously (L+O) events form the numerator of resident birth or death rate which is our present interest. The rate with (L+I) events in the numerator is comparable to the registered birth or death rate usually computed from chowkidar's records.

Relative Efficiencies of Different Sources in Coverage of Births:

In Table 2.1, (L+O) live births are considered to evaluate different sources of birth data. A substantial number of events were uncovered by the subsidiary sources in the years 1969 and 1970. In 1971, 7.9 percent of the events were uncovered by the subsidiary sources as against 21.1 and 15.0 percent in 1969 and 1970 respectively. This could be due to the fact that in 1971 more events, as compared to earlier years, were picked up by the FHW, which otherwise would have been covered by the subsidiary sources. It is also possible that more events of 1971 may be uncovered in the months to come because the subsidiary sources, as discussed earlier, operate with a time lag. Chowkidar's performance is more or less at the same level as far as live births to residents are concerned, while VSI had shown improvement in 1971.

All the three main sources together had recorded 78.9, 85.0 and 92.1 percent of the live births to residents in the years 1969, 1970 and 1971 respectively.

Table 2.1

Relative efficiencies of different sources in covering (L+O) live births.

Source	Percentage of (L+O) live births reported					
	1969		1970		1971	
VSI	(604)	74.0	(677)	75.7	(786)	85.1
Chowkidar	(524)	64.2	(538)	65.8	(614)	66.5
FHW	(49)	6.0	(431)	48.2	(539)	58.3
Subsidiary sources	(172)	21.1	(134)	15.0	(73)	7.9
All sources	(816)	100.0	(894)	100.0	(924)	100.0

Note: Values in parenthesis are absolute numbers:

It should have been interesting to compare the efficiency of chowkidar with other sources in terms of good (a) births (L+I) births in the study area. VSI & FHW should be free of chowkidars.

It may be worth mentioning again that due to time-lag involved in coverage of events by subsidiary sources, birth data is subject to a continuous updating procedure.

Live Births Reported by Different Sources, 1969-71:

Live births classified as (L+O) and (I) are presented according to source for the years 1969, 70 & 71 in Table 2.2. One striking feature of this table is that the FHW has been catching up over the years. It may be noted the FHW was hardly operating as a source in 1969 and it was only towards the end of 1969 that this was included as one of the sources for birth data collection. The increased coverage by the FHW over the years is evident from the fact that events commonly reported by VSI and chowkidar, both in (L+O) and (I) groups, were decreasing over the years while events common to VSI, chowkidar and FHW were increasing.

The incoming live births constituted 26.0, 28.7 and 28.8 percent of all live births in 1969, 1970 and 1971 respectively.

Seasonality of live births:

Live births to residents are presented in Table 2.3 by month of occurrence in each of the years 1969, 70 & 71. A majority of the births (57-60 percent) occurred during the six months period June - November with the corresponding conceptions taking place in months September-February.

From the combined data of 1969-71, it appears that the peak month for occurrence of births is September.

Incoming births were deliberately excluded from this table because it was feared that 'true' seasonality of births would be clouded by factors such as convenience, in certain months, for women to travel to parents' place for delivery, vacation time, harvest time, etc.

Sex Ratio at Birth:

Distribution of male and female live births and the corresponding sex ratio are presented for each parity and mother's age group in Tables 2.4 and 2.5. The sex ratio at birth (males per 100 females) showed wide fluctuations by parity as well as by age of mother in all the three years 1969-71. The overall sex ratio is 126.1 in 1969, 112.6 in 1970 and 123.7 in 1971 giving a value of 120.5 for the pooled data for the three calendar years. Though one is hesitant to comment on the fluctuations in sex ratio by parity because of small numbers in each calendar year, it is obvious from the data pooled over the three years in Table 2.4 that female births especially of parities 1-3 are under-reported. International experience shows that the sex ratio at birth varies usually between 105 and 107 males per 100 females.

Table 2.2

Live births reported by different sources.

Main source:	(L+O) Births 1969	1970	1971	(I) Births 1969	1970	1971
V.S.I.	117	104	141	21	28	22
Chow.	37	25	8	25	9	4
F.H.W.	0	35	24	1	5	1
VSI,Chow	441	202	163	207	144	81
VSI,FHW	3	35	72	1	13	16
Chow, FHW	3	25	33	0	10	2
VSI,Chow,FHW	43	336	410	20	147	240
Total (Main sources)	644	760	851	275	356	366
Sub source:						
Birth Prospect Card	32	75	59	3	1	7
Morbidity survey	135	53	12	7	3	1
V.S.Death forms	5	6	2	1	0	0
Total (Sub sources)	172	134	73	11	4	8
Total (All sources)	816	894	924	286	360	374

Table 2.3

Distribution of live births to residents (L+O) by month and year of birth

Month	Year							
	1969 Number	%	1970 Number	%	1971 Number	%	1969-71 Number	%
Jan.	62	7.6	57	6.4	77	8.3	196	7.4
Feb.	59	7.2	51	5.7	51	5.5	161	6.1
Mar.	49	6.0	62	6.9	52	5.6	163	6.2
Apr.	60	7.4	53	5.9	47	5.1	160	6.1
May	58	7.1	67	7.5	69	7.5	194	7.4
June	78	9.6	80	8.9	86	9.3	244	9.3
July	76	9.3	75	8.4	96	10.4	247	9.4
Aug.	58	7.1	116	13.0	80	8.7	254	9.6
Sep.	91	11.2	100	11.2	102	11.0	293	11.1
Oct.	75	9.2	85	9.5	109	11.8	269	10.2
Nov.	86	10.5	72	8.1	82	8.9	240	9.1
Dec.	61	7.5	74	8.3	71	7.7	206	7.8
Not known	3	0.4	2	0.2	2	0.2	7	0.3
Total:	816	100.0	894	100.0	924	100.0	2634	100.0

Table R-4

Sex ratio of live births to residents (L40) by parity

Parity	1969 Male	1969 Female	1969 Sex Ratio	1970 Male	1970 Female	1970 Sex Ration	1971 Male	1971 Female	1971 Sex Ratio	1969-71 Male	1969-71 Female	1969-71 Sex Ratio
1	43	39	110.3	74	51	145.1	118	62	190.3	235	152	154.6
2	57	46	123.9	83	60	138.3	99	86	115.1	239	192	124.5
3	48	33	145.5	81	56	144.6	89	59	150.8	218	148	147.3
4	45	20	225.0	55	78	70.5	58	62	93.5	158	160	98.8
5	27	33	81.8	48	54	88.9	49	41	119.5	124	128	96.9
6	30	21	142.9	49	28	175.0	32	30	106.7	111	79	140.5
7	17	17	100.0	22	19	115.8	20	16	125.0	59	52	113.5
8 +	28	29	96.6	20	28	71.4	17	19	89.5	65	76	85.5
Not known*	159	122	130.3	41	16	89.1	29	38	76.5	229	206	111.2
Total	454	360	126.1	473	420	112.6	511	413	123.7	1438	1193	120.5

* Note: 2 live births in 1969 and 1 live birth in 1970 with sex not specified are excluded from this table.

Sex ratio : Males per 100 females.

Table 3.5

Sex ration of live births to resident (I+O) by age of mother

Age group of mother	1969 Male	1969 Female	1969 Sex ration	1970 Male	1970 Female	1970 Sex ration	1971 Male	1971 Female	1971 Sex ration	1969-71 Male	1969-71 Female	1969-71 Sex ratio
<15	0	1	0.0	0	0	-	0	0	-	0	1	-
15-19	31	28	110.7	23	26	88.5	24	22	109.1	78	76	102.6
20-24	140	100	140.0	155	116	133.6	198	134	147.8	493	350	140.9
25-29	128	90	142.2	125	123	101.6	142	110	129.1	395	323	122.3
30-34	68	67	101.5	93	93	100.0	85	87	97.7	246	247	99.6
35-39	30	40	75.0	53	37	143.2	49	39	125.6	132	116	113.8
40-44	14	5	280.0	18	14	128.6	6	14	42.9	38	33	115.2
45-49	5	3	166.7	0	1	0.0	1	1	100.0	6	5	120.0
50+	2	0	-	0	1	0.0	0	0	-	2	1	200.0
not known*	36	26	138.5	6	9	66.7	6	6	100.0	48	41	117.1
Total	454	360	126.1	473	420	112.6	511	413	123.7	1438	1193	120.5

Note: 2 live births in 1969 and 1 live birth in 1970 with sex not specified are excluded from this table.
Sex ratio : Males per 100 females

Distribution of Annual Births by Parity and Age of Mother:

The total number of live births which occurred to residents are 816 in 1969, 894 in 1970 and 924 in 1971. Distributions of these births by parity and age of mother are presented in Tables 2.6-2.8.

In 1969 for a considerable proportion, namely 34.7 percent, of the total live births to residents parity, was not recorded. This percentage dropped to 9.8 in 1970 and 7.3 in 1971. Such improvement in the information on parity was possible by periodic scrutiny of birth forms and utilization of baseline data on pregnancy history of women, the collection of which started towards the end of 1969.

Data on age of mother was missing in 7.8 percent of all live births in 1969, 1.8 percent in 1970 and 1.3 percent in 1971.

Some Statistics Based on Age-Parity Grids of Annual Births:

Although it is customary to compute statistics based on age parity grids one must be aware of the pitfalls in using them to study time trends. Mean, median and proportion of births in each parity group and age group of mother were computed and are presented in Table 2.9. The mean parity of all births is 3.92 for 1969, 3.31 for 1970 and 3.31 for 1971. The mean ages of mother for the three calendar years are 27.59, 28.08 and 27.45.

In 1969, 13.4 percent of the births occurred to mothers aged 35 years and over and this percentage dropped to 3.7 in 1970 and 2.4 in 1971.

In 1969 and 1970 about 50 percent of all births were of 4th para or above while only about 40 percent constituted these high parities in 1971.

Conventional Indices of Fertility:

In order to compute indices of fertility, married women and all women in reproductive ages and the total population were estimated. The estimations were based on a population count made in the study area in 1969 and on the updating operation done in 1971.

The total population of the study area is estimated as 28950 persons in 1971. This yields a crude birth rate of 32.0. From table 2.10 it can be seen that the General Fertility Rate (with women aged 15-44 in the denominator) for 1971 is 162 and the Marital Fertility Rate is 212.9.

One obvious question from the above findings is "Is the fertility of women in the study villages lower than the all-India level"? If we take the Crude Birth Rate of India as 40.0, the C.B.R.

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Table 6.6

Distributions of births of residents (I+O) by parity and mother's age, 1969

Age of mother	Parity									Total Births
	1	2	3	4	5	6	7	8+	Not known	
<15	1	0	0	0	0	0	0	0	0	1
15–19	20	13	1	0	[illegible]	0	0	0	25	59
20–24	48	56	32	16	7	3	0	0	78	240
25–29	10	24	36	32	25	23	5	4	59	218
30–34	2	6	9	14	20	13	16	22	33	135
35–39	0	0	2	3	7	11	11	21	15	70
40–44	[illegible]	2	0	0	1	0	1	5	10	19
45–49	0	[illegible]	0	0	0	0	1	4	3	8
50+	[illegible]	0	1	0	0	0	0	0	1	2
Not known	1	2	0	0	0	1	0	1	59	64
Total	82	103	81	65	60	51	34	57	283	816

Table T.7

Distribution of births to residents (L+O) by parity and mother's age, 1970

Age of mother	Parity									Sum parities
	1	2	3	4	5	6	7	8+	Not known	
L15	0	0	0	0	0	0	0	0	0	0
15-19	26	8	3	0	0	0	0	1	11	49
20-24	85	90	38	16	2	0	1	1	38	271
25-29	12	34	76	70	27	8	6	1	14	248
30-34	1	11	16	37	53	37	16	13	2	186
35-39	1	0	3	8	18	23	14	20	3	90
40-44	0	0	1	2	2	9	4	11	3	32
45-49	0	0	0	0	0	0	0	1	0	1
50+	0	0	0	0	0	0	0	0	1	1
Not known	0	0	0	0	0	0	0	0	16	16
Total:	125	143	137	133	102	77	41	48	88	894

Table Q.8

Distribution of Births to residents (L40) by parity and mother's age: 1971

Age of mothers	Parity									See footnotes
	1	2	3	4	5	6	7	8+	Not known	
<15	0	0	0	0	0	0	0	0	0	0
15-19	31	7	3	0	0	0	0	0	5	46
20-24	135	115	37	9	0	1	3	0	32	332
25-29	13	53	85	60	27	7	0	1	6	252
30-34	1	7	18	39	49	35	13	6	4	172
35-39	0	2	4	11	12	16	18	18	7	88
40-44	0	0	1	1	2	3	2	10	1	20
45-49	0	0	0	0	0	0	0	1	1	2
50+	0	0	0	0	0	0	0	0	0	0
Not known	0	1	0	0	0	0	0	0	11	12
Total:	180	185	148	120	90	62	36	36	67	924

Table 2.9

Some statistics computed from distribution of annual births to residents (L40) by parity & age of mother

Age group of mother	Mean Parity			Median Parity			Proportion of Births in age group			Cumulative proportion of births beyond and including age group		
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971
/15	1.0	-	-	0.5	-	-	.001	.056	.050	1.000	1.000	1.000
15-19	1.44	1.55	1.32	.86	.73	.66	.078	.309	.365	0.999	0.944	0.950
20-24	2.30	2.01	1.79	1.59	1.35	1.13	.319	.284	.276	0.921	0.635	0.585
25-29	3.92	3.51	3.25	3.26	2.93	2.68	.291	.214	.189	0.602	0.352	0.309
30-34	5.52	5.01	4.87	4.97	4.51	4.39	.179	.102	.096	0.311	0.139	0.120
35-39	6.62	6.07	6.00	6.41	5.59	5.72	.094	0036	.022	0.134	0.037	0.024
40-44	6.22	6.59	6.95	7.10	6.12	7.05	.025	.001	.002	0.038	0.001	0.002
45-49	7.80	8.00	8.00	7.37	7.5	7.05	.011	-	-	.013	-	-
50+	3.00	-	-	2.5	-	-	.002	-	-	.002	-	-
Total	3.92	3.72	3.31	3.008	2.98	2.43	1.00	1.00	1.00	-	-	-

Parity	Mean age			Median age			Proportion of births with parity			Cumu. proportion of births beyond & including parity		
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971
1.	22.01	22.14	22.05	22.03	22.15	22.18	.154	.155	.210	1.000	1.000	1.000
2.	24.03	24.17	24.29	23.34	23.58	23.69	.193	.177	.216	0.846	0.845	0.790
3.	26.51	26.81	27.02	26.04	26.81	26.94	.152	.171	.173	0.653	0.668	0.574
4.	27.81	29.12	29.79	27.58	28.61	29.25	.122	.165	.140	0.501	0.497	0.401
5.	30.00	32.06	31.88	29.60	32.12	31.84	.112	.126	.105	0.379	0.332	0.261
6.	30.70	34.64	34.59	29.78	34.12	33.28	.096	.095	.072	0.267	0.206	0.156
7.	34.12	34.20	34.72	33.75	34.22	35.55	.064	.052	.042	0.171	0.111	.084
8+	35.98	36.56	38.05	35.48	37.00	38.05	.107	.059	.042	0.107	0.059	.042
Total	27.59	28.98	27.45	26.74	27.40	26.55	1.00	1.00	1.00	-	-	-

Table K.10

Crude Birth Rate, General Fertility Rate and Marital Fertility Rate for Study area, 1971: based on (L+0) births

	Age group		All ages
	15-44	15-49	
No. of woman	5693	6143	
No. of married women	4331	4719	
Total Pop.(all ages			28950
No.of (L+0)live births,1971 (including age not known)	922	924	
No.of births per 1000 women (General Fertility Rate)	162.0	150.4	
No.of births per 1000 married women(marital Fertility Rate)	212.9	195.8	
Births per 1000 population (Crude Birth Rate)			32.0

of our study area is lower than that of India by 20 percent. Taking the Marital Fertility Rate of India as 223, we see this rate for the study area is about 4.5 percent lower than that of India. The two indices of fertility, crude birth rate and marital fertility rate, provide different pictures because of the fact that there are about 180 married women in the age group 15-44 for every 1000 population in India whereas there are only 150 married women in age group 15-44 in the study area.

If we believe that female births were missed in the vital statistics data collection, on the basis of an observed sex ratio at birth of 120 males per 100 females while international experience shows the range of the sex ratio at birth is 105-107 and adjust the total number of births accordingly, the total number of births for the study area will increase by 5-6 percent.

An investigation into the difference in fertility between the study area and India as a whole is presently being conducted and more will be known after appropriate age-marital status adjustments are effected.

Death Rates:

Total number of deaths to residents reported by the main sources and subsidiary sources are 376 in 1969, 390 in 1970 and 362 in 1971. With a total population for 1971 estimated at 28,950 persons the resident Crude Death Rate for 1971 is 12.5 per 1000 population.

Other death rates namely Perinatal Death Rate, Neonatal Death Rate, Infant Mortality Rate are presented for the three years 1969-71 in Table 2.11. If still births are excluded from Perinatal Death Rates for both sexes in 1971, it can be seen that about 4 percent of children born alive die during the first week of life, 5.6 percent before one month and about 11 percent before one year of life. The infant mortality rate among females (128.3) is higher than among males (95.9). It may not be wise to comment on these levels until a careful look is taken at the differential reporting by sex of live births and of infant deaths. It may be recalled the sex ratio at birth was too much in favour of males in this study area as compared to international experience.

Still births in 1971 was about 5.9 percent among males, 5.3 percent among females and 5.6 percent for both sexes. The still birth rate agrees with the international experience.

Marriages in the Study Area:

Collection of data on marriages in the study villages began in October 1970. A total of 529 marriages took place between

Table 12.11

Perinatal, Neonatal, Infant Mortality Rates and Still birth Rate in resident population(L:O)

	1969			1970			1971		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Perinatal Death Rate	3·0	36·1	31·4	35·5	42·9	39·2	43·1	36·3	40·1
	81·6	88·9	73·7	99·3	85·8	93·0	101·8	89·6	96·4
Neonatal Death Rate	48·5	52·8	50·4	74·0	76·2	75·0	62·6	48·4	56·3
Infant Mortality Rate	94·7	113·9	103·2	116·3	111·9	114·2	95·9	128·3	110·5
Still Birth Rate	28·6	52·8	39·3	33·8	42·9	38·1	58·7	53·3	56·3

Note: All rates in this table are per 1000 live births.

Perinatal Death Rate includes still births.

October 1970 and December 1971. Distribution of these 529 marriages by age of bride and age of groom is presented in Table 2.12. The mean age of brides is 19.25 and the mean age of grooms is 21.75. Girls in the study area marry, on an average, at a higher age than girls of all India. Also the age difference between brides and grooms is almost one half of the usually known difference of average Indian couples.

Percentage distributions of marriages by age of bride and of groom are summarized in Table 2.13. As many as 50 percent of the brides were in the age group 18-20 years. About a third of the grooms belonged to the age group 18-20 and another third to the group 21-23 years.

One common feature of marriages in the study area is that the bride and groom do not belong to the same village. Brides are sought from other villages and the same is the case when brides are offered. In about 70 percent of the marriages brides are sought from or sent to villages which are within a radius of 15 miles. Distribution of marriages by distance covered to seek brides is presented for major caste groups in Table 2.14.

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Table 12.12

Distribution of marriages (Oct. 1970-Dec. 1971) by ages of bride & groom

Wife's age → / Husband's age ↓	Less than 15 years.	15-17	18-20	21-23	24-26	27-29	30+	Age not available	Total	Mean age of wife
Less than 15	0	0	0	0	0	0	0	0	0	
15-17	2	16	2	1	0	0	0	1	22	16.29
18-20	4	79	94	0	1	0	0	1	179	17.57
21-23	1	12	119	42	1	0	0	0	175	19.51
24-26	0	3	45	49	24	0	0	2	123	21.33
27-29	0	0	6	5	5	0	0	0	16	21.81
30+	0	0	2	4	1	0	1	0	8	22.75
Age not available	0	2	1	0	0	0	0	3	6	-
Total:	7	112	269	101	32	0	1	7	529	19.25
Mean age of husband	18.57	19.05	21.60	24.05	25.34	-	35.00	-	21.75	

Table 13.13

Age group (Years)	Brides			Grooms		
	Number	Percent	Cumu.percent	Number	Percent	Cumu.percent
<15	7	1.3	1.3	0	0.0	0.0
15-17	112	21.5	22.8	22	4.2	4.2
18-20	269	51.5	74.3	179	34.2	38.4
21-23	101	19.4	93.7	175	33.5	71.9
24-26	32	6.1	99.8	123	23.5	95.4
27-29	0	0.0	99.8	16	3.1	98.5
30+	1	0.2	100.0	8	1.5	100.0
Age not available	7			6		
Total:	529			529		

Table 12.14

Distribution of marriages (Oct. 1970-Dec. 1971) by caste and distance covered to seek a bride

Caste	Upto 5miles	6-10 miles	11-15 miles	16-20 miles	21-25 miles	26-30 miles	31-35 miles	36-40 miles	40+ miles	Information not avail/ able	Total
Jat	44	79	48	36	10	6	2	6	6	2	239
Cumu. percentage	18.6	51.9	72.2	87.3	91.6	94.1	94.9	97.5	100.0		
Ramdasia	28	52	47	17	7	6	1	0	0	0	158
Cumu. percentage	17.7	50.6	80.4	91.1	95.6	99.4	100.0	-	-	-	-
Others	15	21	24	20	2	6	4	5	10	1	108
Cumu. percentage	14.0	33.6	56.1	74.8	76.6	82.2	84.1	90.7	100.0		
Information not avail/ able	3	6	4	3	3	1	0	1	2	1	24
Total:	90	158	123	76	22	19	7	12	18	4	529
Cumu. percentage	17.1	47.2	70.6	85.1	89.3	92.9	94.2	96.5	(100.0)	-	-

CHAPTER THREE

FUNCTIONAL ANALYSIS OF NARANGWAL SERVICES

Summary

1. Preliminary analysis of the first full year's data represents progress during the past 12 months in the application of a methodology for work sampling health service activities. A coding format, permitting abstraction of data from service records (service record analysis) for processing by computer has been developed and pretested. The ground has also been prepared for certain household surveys (e.g. on use of other sources of medical care by the study population) and for a cost analysis of the services.

2. 34,663 observations of FHWs on 283 full working days have been made in 1971 on the services in Pakhowal (WS+CC+FP) and Malaud villages (WS+FP). Analysis of these observations made on the FHW is reported. The report on other members of the health team and on staff interaction will be available within a few months.

3. Although formal service record analysis is not yet on a working footing, analysis by hand sorting and recording has again been accomplished in all Pakhowal and Malaud villages (as during last year) for both womens and child care services, in the home and clinic, over a 2 month period (November and December 1971) - and on all obstetric cases over a 6 months period in these 8 sub-centers (July-December 1971).

Current Status of the Functional Analysis

One of the important components of the research projects at Narangwal is the measurement and evaluation of the various service programs being developed. The purposes of this measurement and evaluation are primarily two fold.

1) To monitor the services quantitatively and qualitatively in order to permit them to be moulded into a pattern acceptable for routine replication by government health services. Of crucial importance in this exercise is the measurement of costs so that the most effective service at reasonable levels of expenditure can be evolved.

2) To provide research data that will permit the linking of service inputs to the end results of the services. Possible uses of the data will be in analyses that will attempt to define the important components of the services most closely linked to increases in acceptance of family planning.

Considerable progress during the past year has been made in the development of measurement tools and the collection of data. Preliminary analyses have been carried out on some of the data and the resultant findings have been presented in other sections of this report and are summarized at the end of this chapter. The specific methods used or proposed for generating the necessary information are (1) work-sampling of the health service activities, (2) abstracting data from subcenter records (service records), (3) household surveys to determine the extent of utilization of Narangwal services in comparison with the use of other sources of health care, (4) abstracting expenditure data from administrative records to use in a cost analysis of the services, and (5) determining quantitatively and qualitatively the specific components of the services by means of observational check lists. The current status of each of these methods and their future applications will be briefly summarized.

1. Work Sampling

This has been the first method to be applied and was described extensively in the 1970-71 project report. Basically it involved the collection of detailed information about the activities of staff delivering health services. Observers accompanied each worker throughout the working day and made instantaneous observations every two minutes. Data was collected for the entire year during 1971, generating 24 observation days for each staff member, scattered over all quarters of the year and sampling each day of the week each quarter. A tremendous volume of data has been produced and is currently being analyzed. Summary tabulations for the FH Ws in the two major population cohorts was available for this report and will be discussed. The preliminary analysis of the remaining data should be finished during the summer of 1972. Work sampling has been suspended in 1972 except for the FPW. Observations of the latter will continue through June 1972. Additional work sampling will be carried out on a focused basis in the second half of 1972, examining specific areas of service activities which will have changed since 1971 or which need more refined data. A major work sampling of all service activities will be carried out near the final stages of the project if the current services are significantly modified. Otherwise focused work sampling mentioned above will continue for the remainder of the project in coordination with the Content Analysis described below.

2. Service Record Analysis

A major source of information about the Narangwal services is just beginning to be tapped systematically. The records maintained by the FHW concerning the services delivered in each village are an important component of the functional analysis as well as being an essential part of the direct service program. In this report and in last year's report limited surveys of these records have yielded useful evaluation data. However the major effort during the past year was the development of a coding format that would permit the abstracting of pertinent data from the records that could be placed on IBM cards and processed by a

computer. This was accomplished, pretested, and staff hired to do the actual coding. By mid summer 1972 data from several villages should be ready for preliminary analysis. It is hoped that a fairly rapid summary analysis of the data as it is generated will be useful for immediate feedback to service staff to help guide their activities. The data abstracted from the service records includes the following:

a) Summary identification and descriptive information of each family and individual for whom services are provided.

b) Selected items of interest for certain individuals such as dietary or obstetrical history.

c) Details of each service contact including date, place, type, complaint, history, examination, treatment, advice, referral, drug costs, and the staff member providing the service.

The possibilities for analysis are both quantitative and qualitative. The volume of specific services provided to a cohort or to an individual can be ascertained. The content of these services and their pattern over time can be defined. Examples of this are given in chapter Four of this report. It will also be possible to analyze the delivery of care recorded in these records and compare it with the guidelines of the standing orders for treatments and referrals, thus providing a measurement of quality of care and supervision.

Recorded service information certainly represent the major services provided in the study villages. However, it definitely does not include all contacts our staff have with villagers. A large amount of rapport making or sustaining contacts occur as well as unrecorded contacts in which service, advice or even treatment is given. Examples of the latter include advising a mother about her child when stopped in the lane during routine home visiting, or giving aspirin to a woman with a headache while busy with another patient in the clinic. These contacts may often be as important as more formal contacts. Because of this possibility, total contacts with individuals made by field staff during observation days were recorded alongwith activity information by the work sampling observer. Table 3.1 compares the major contacts recorded by the FHW with those observed to have occurred. This quantifies the already known fact and shows that a considerable volume of contacts are not of the type that are currently recorded. With this knowledge it has become evident that much more detail about these extra contacts needs to be collected in future work sampling.

3. Household Surveys

In previous surveys by RHRC in this area of Punjab it has been amply shown that villagers use multiple sources of medical care. In addition the Narangwal services have excluded certain segments of the population (e.g. men) from its care and left some aspects of health

TABLE 3.1

COMPARISON OF FHW CONTACTS* RECORDED IN SERVICE RECORDS WITH CONTACTS OBSERVED DURING WORK SAMPLING.

TYPE OF SERVICE	COHORT			
	CC + WS + FP		WS + FP	
	Recorded Contacts	Observed Contacts	Recorded Contacts	Observed Contacts
Children's Services 0-2 years	30	53	2	5
Children's Services 3-13 "	13	24	-	-
Women's Services	56	108	40	66
Men's Services	-	3	-	6
Group and Other Contacts	-	36	-	18
Rapport Contacts	-	78	-	51
TOTAL CONTACTS:	99	302	42	146

* Average per day per cohort during November and December for Service Records and October, November, December for Work Sampling.

care such as malaria surveillance to be done by the government. It is therefore imperative to look beyond our own services if we want to measure all of the health care inputs into our study villages. In the final analysis in which health care inputs are related to end results of service, this additional information will be of considerable importance. Data on use of outside services by the segment of the population we are trying to serve may also give an indirect indication of the acceptability of our services.

The method selected to collect this information is the household survey. Field investigators will be assigned to systematically interview families in our study villages. The basic format of the survey was developed in the Functional Analysis Project and includes the collection of (a) information about the presence or absence of family members during a reference period of two weeks, (b) any contact with health workers during the two weeks, especially PHC workers, (c) all illness episodes during the two week period, (d) all visits to health practitioners during the two weeks, and (e) some information about the type and costs of care received. The questionnaires have been developed and pretested and the actual survey will begin later in 1972. To illustrate some of the data that will become available, the results of the pretest in a limited number of households in three cohorts* are presented in Table 3.2. Although the numbers are too small to be significant, some possible patterns of use of Narangwal services can be seen. Of those children in child care cohorts that are taken to a health service, most are seen by the Narangwal FHW, whereas women in the women services cohorts tend to divide their visits between our services and outside services, no matter which cohort they are in. Once the definitive data collection begins it will become possible to identify not only these utilization patterns but possible reasons for their occurrence.

4. Cost Analysis

The primary data for the cost analysis are derived from accounting and administrative records of the project. These data are being abstracted and consolidated on a village by village basis under the following major expenditure headings:

1) Buildings (clinics)
2) Equipment
3) Supplies and Food
4) Drugs
5) Service Records and Forms
6) Laboratory Tests
7) Referrals
8) Transportation
9) Salaries
10) Administrative (Office) Expenditures

*In this chapter "cohort" has been used to indicate a "cell" of the research design.

Table 3.2

PRETEST RESULTS OF MORBIDITY AND MEDICAL CARE UTILIZATION SURVEY IN THREE COHORTS - MARCH 1972

	COHORT								
	CC + WS + FP			WS+FP			CC+FP		
	Children 0-13	Women	Men	Children 0-13	Women	Men	Children 0-13	Women	Men
Persons at Risk (Sample size)	74	58	70	26	22	22	56	53	57
Persons with Illness Problems	26	21	13	6	14	7	6	13	5
Persons with Illness Problems less than 2 weeks duration	16	10	6	4	8	3	3	12	3
Persons receiving Treatment	12	10	8	5	5	3	2	7	4
Persons treated at MCHC	10	4	1	1	2	0	2	1	0
Persons treated by others	1	5	7	4	3	3	0	6	4
Persons treated by Both MCHC and Others	1	1	0	0	0	0	0	0	0

CC=Child Care Services, WS=Women Services, FP=Family Planning Services.

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Using the work sampling and service records data, expenditures in each of these headings can be allocated to the various functions and services of each village or cohort. The latter information will then permit cost-effectiveness calculations relating service costs to outcome measures. An example of the latter would be the costs of obtaining and serving family planning acceptors for each method, which in turn would be linked to calculations of costs of births averted by each method.

The data for the cost analysis is almost completely summarized for the years through 1971 and will be ready for analysis at the time the work sampling and service records data become available.

5. Content Analysis

Detailed examination of the delivery of health care at Narangwal has been carried out in many ways. On a day-to-day basis, discussions and decisions are based on actual field experience of staff and supervisors. More formal approaches have included record review and a careful review of all referrals to physicians. (Presented later in this report.) The Service Record Analysis and Work Sampling will provide considerable quantitative information about the service programs at Narangwal. However, it has become evident that a more detailed quantification of our services needs to be done. We are proposing therefore in the coming year to develop and carry out an assessment of the content and process of delivery of care using observational techniques. These will be based on our experience in the Functional Analysis Project where check lists were used to measure the performance of staff in the health center when providing out-patients care. The multiple activities of our field staff will be observed, details of both formal and informal contacts recorded and check lists based on standing orders will be filled out by the observer. These observations will be coordinated or built into the work sampling frame work to give them a quantitative base. An example of the type of information we hope to obtain would be the content of visits and approach used to individuals when family planning is discussed. An important part of this will be the assessment of how and when family planning is integrated with the delivery of other services. These data will then provide both greater detail for quantitative analysis and permit the building up of precise descriptive profiles of the service programs.

Preliminary Findings From The F/NS Work Sampling Observations In Two Cohorts During 1971.

Summary tabulations of the work sampling data for two cohorts were completed in time for this report. They include a full year of observations of the FHW in 1) the child care services, woman's services and family planning cohort (CC+WS+FP), and 2) the women's services and family planning cohort (WS+FP). Selected data from these tabulations have been used elsewhere in the report and in the following tables which

illustrate the types of information available from this study. The data is presented here in the form of total observations or percentage distributions of observations. By knowing the number of observation days and calculating the average observations per day, approximations of time spent in various activities can be obtained from these data.

In the first table (Table 3.3) observations involving the major functions of the services provided in the two cohorts are presented. The functional categories in this table are self explanatory except for the "Normal Related" function which involves all preventive services and routine home visits, and the "Community Related" function which includes discussions with community leaders, vaccination campaigns and other community wide services. It can be seen that only about 50 percent of all observations are classifiable by function. The remainder are difficult to relate to any specific function and include administrative activities, rapport making contacts, travel, personal time, etc. In this table the total number of observations for each quarter, the average observations per day and the average number of minutes the observations represent are illustrated. Some variation between functions performed in different quarters of the year and between the two cohorts can be seen. The difference in the proportion of time spent in the maternity function is expected, but not the large difference in time spent providing family planning. The possible effect this has on family planning acceptance will be important to assess.

Table 3.4 presents the distribution of the FHW's activities between actual direct service contacts and other activities. The amount of time spent in direct service is considerably more in both cohorts that the 15 percent found when government ANM's were observed in Punjab PHCs during 1968-1969. "Supportive Services" include supervisory and administrative activities necessary to back up any health service. "Non-technical" includes time spent in personal activities. Table 3.5 breaks the "Direct Service Contacts" down into the various groups of the population served by the FHW and Table 3.6 presents some further details of specific activities making up the services provided. Table 3.7 gives the details of the amount of supervision or staff contacts the FHW receives. In this table only the actual interaction has been recorded. The time spent by the supervisor observing the FHW while the latter carried out her routine duties will be available only with the supervisor's work sampling data. The pattern observed is quite consistent in both cohorts and indicates the major effort involving training and communication. Table 3.8 shows the distribution of the FHW's time between various places. Although theoretically the FHW is supposed to divide her time between work in the subcenter and in the homes, in fact she spent more than twice as much time in the former.

Table 3.9 and 3.10 give further details about the direct service contacts, relating them to specific functions in each cohort. The preponderance of illness care in most groups is readily evident and the small input of family planning into services for pregnant women is

Table 3.3

PERCENTAGE DISTRIBUTION OF FHW OBSERVATIONS CLASSIFIABLE BY FUNCTION, BY COHORT, FOR EACH QUARTER AND TOTAL FOR 1971.

FUNCTIONS AS PERCENT OF CLASSIFIABLE OBSERVATIONS	CC + WS + FP COHORT Quarters of Year					WS + FP COHORT Quarters of Year				
	1st	2nd	3rd	4th	All	1st	2nd	3rd	4th	All
ILLNESS CARE	49.0	65.2	55.7	56.2	56.3	40.6	47.7	51.8	41.2	44.9
NORMAL RELATED	25.8	14.0	20.3	12.6	18.5	13.9	8.4	9.7	6.8	9.9
MATERNITY	15.6	13.3	11.0	13.9	13.6	29.5	30.4	19.9	34.2	28.8
F.P.	4.7	3.8	5.6	12.2	6.4	15.9	13.4	18.4	17.6	16.2
NUTRITIONAL SUPP.	4.8	2.6	2.5	4.1	3.5	-	-	0.1	0.2	0.1
COMMUNITY RELATED	0.1	1.1	4.9	1.0	1.7	0.1	0.1	0.1	-	0.1
TOTAL CLASSIFIABLE OBS (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL CLASSIFIABLE OBS. (No.)	2888	2634	2265	2297	10084	1467	1268	1075	1202	5012
NON-CLASSIFIABLE OBS. (No.)	2859	2846	2549	2634	10888	2202	2339	2205	1933	8679
TOTAL OBSERVATIONS (No.)	5747	5480	4814	4931	20972	3669	3607	3280	3135	13691
TOTAL OBS.DAYS(No.)	30	29	24	24	107	20	20	18	18	76
AVERAGE OBS.PER DAY	192	189	202	205	196	183	180	182	174	180
AVERAGE MINUTES PER DAY	384	378	404	410	392	366	360	364	348	360

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Table 3.4

PERCENTAGE DISTRIBUTION OF TOTAL FHW OBSERVATIONS BY MAJOR ACTIVITY AND COHORT, TOTAL FOR 1971.

ACTIVITY AS PERCENT OF TOTAL OBSERVATIONS	CC+WS+FP COHORT	WS+FP COHORT
DIRECT SERVICE CONTACTS	43.4	36.1
SUPPORTIVE SERVICES	31.6	31.5
WAITING	1.2	1.2
TRANSIT	13.4	12.6
NON-TECHNICAL	8.4	16.5
ACTIVITY NOT CLASSIFIED	2.0	2.1
TOTAL OBS. (%)	100.0	100.0
TOTAL OBS. (No.)	20972	13691

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Table 3.5

PERCENTAGE DISTRIBUTION OF FHW OBSERVATIONS INVOLVING DIRECT SERVICE CONTACTS, BY COHORT, TOTAL FOR 1971.

DIRECT SERVICE CONTACTS AS PERCENT OF TOTAL OBSERVATIONS INVOLVING CONTACTS	CC+WS+FP COHORT	WS+FP COHORT
CHILD less than 1 month	2.1	1.4
CHILD 1-12 months	9.5	0.3
CHILD 13-36 months	17.1	0.7
CHILD 3-13 years	12.5	0.4
WOMAN Non-Pregnant	44.2	71.3
WOMAN Pregnant or P.P.	10.1	22.3
MAN	1.8	0.8
GROUP	1.3	2.0
CONTACT, NOT CLASSIFIED	1.4	0.8
TOTAL CONTACT OBS. (%)	100.0	100.0
TOTAL CONTACT OBS. (Nos.)	9103	4946
NO CONTACT OBS. (No.)	11869	8745
TOTAL OBS. (No.)	20972	13691

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Table 3.6

PERCENTAGE DISTRIBUTION OF FHW SPECIFIC ACTIVITY OBSERVATIONS IN TWO COHORTS FOR 1971.

SPECIFIC ACTIVITY	CC+WS+FP COHORT	WS+FP COHORT
Consultation	14.4	11.6
Examination	3.4	2.1
Treatment	7.6	5.3
Laboratory	0.2	0.2
Community Contacts	7.0	6.5
Other Contacts	3.4	6.8
Administrative Contacts	3.0	2.8
Preparation-Maintenance	7.8	9.0
Records	28.2	23.4
Waiting for Staff, Patients, etc.	1.2	1.1
Major Travel*	0.3	0.1
Other Transit	13.0	12.5
Non-Technical	8.4	16.5
Not classified	2.1	2.1
Total (%)	100.0	100.0
Total (No.)	20,972	13,691

*Excludes Travel to and from RHRC on training days

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PERCENTAGE DISTRIBUTION OF TOTAL NUMBER OF OBSERVATIONS BY STAFF INTERACTION AND COHORT, TOTAL FOR 1971.

STAFF INTERACTION AS PERCENT OF TOTAL OBSERVATIONS	COMMUNITY COHORT	MEDICAL COHORT
CHECKED BY SUPERVISOR	1.0	1.6
RECEIVED TRAINING	5.1	5.2
RECEIVED COMMUNICATION	1.1	1.8
RECEIVED ASSISTANCE	1.0	0.5
CHECKED OTHERS WORK	1.1	0.4
GAVE TRAINING	0.2	-
GAVE COMMUNICATION	3.8	4.1
GAVE ASSISTANCE	1.3	1.2
INTERACTION NOT CLASSIFIED	0.5	0.5
NO INTERACTION	34.7	34.7
TOTAL (%)	100.0	100.0
TOTAL OBS.(No.)	20972	13691

TABLE 3.8

PERCENTAGE DISTRIBUTION OF TOTAL FHW OBSERVATIONS BY PLACE AND COHORT, TOTAL FOR 1971.

PLACE AS PERCENT OF TOTAL OBSERVATIONS	CC+WS+FP COHORT	WS+FP COHORT
RHRC	11.6	10.1
SUB-CENTER/FEEDING CENTER	56.2	53.8
HOME VISIT	20.4	24.3
FIELD AND OTHER	10.6	10.1
NOT CLASSIFIED	1.2	1.7
TOTAL OBS. (%)	100.0	100.0
TOTAL OBS. (No.)	20972	13691

TABLE 3.9

PERCENTAGE DISTRIBUTION OF FHW DIRECT SERVICE CONTACT OBSERVATIONS BY FUNCTIONS, CC+WS+FP COHORT TOTAL FOR 1971

DIRECT SERVICE CONTACTS	FUNCTIONS AS PERCENT OF TOTAL CONTACT OBSERVATIONS								TOTAL CONTACT OBS.	CONTACTS AS % OF TOTAL OBS.
	ILL	NORM	MAT.	F.P.	NUT.	COMM.	NONE	TOTAL		
CHILD < 1 month	29.1	66.5	-	-	-	3.2	0.5	100.0	188	0.9
CHILD 1-12 mths	61.3	34.8	-	-	0.9	1.0	2.0	100.0	868	4.1
CHILD 13-36 "	59.4	36.0	0.2	-	1.0	0.8	2.5	100.0	1553	7.4
CHILD 3-13 yrs	92.9	5.2	-	0.3	-	0.5	1.1	100.0	1139	5.4
WOMAN NON-PREG.	63.3	9.6	1.0	9.8	0.6	0.1	15.6	100.0	4028	19.2
WOMAN Preg.or PP	7.1	1.4	86.7	1.5	0.3	0	2.9	100.0	917	4.4
MAN	63.9	-	-	-	6.6	3.6	25.9	100.0	166	0.8
GROUP	13.6	10.2	4.2	1.7	4.2	15.3	50.9	100.0	118	0.6
CONTACT NOT CLASSIFIED	19.8	16.7	1.6	-	1.6	2.4	57.9	100.0	126	0.6
NO CONTACT	2.9	3.3	4.4	2.0	2.4	0.9	84.1	100.0	11869	56.6
TOTAL FUNCTION OBS.	27.1	8.9	6.5	3.1	1.7	0.8	51.9	100.0	20972	100.0

TABLE 3.10

PERCENTAGE DISTRIBUTION OF FHW DIRECT SERVICE CONTACT OBSERVATIONS BY FUNCTION, MS+FP COHORT

TOTAL FOR 1971

DIRECT SERVICE CONTACTS	FUNCTIONS AS PERCENT OF TOTAL CONTACT OBSERVATIONS								TOTAL CONTACT OBS.	CONTACTS AS % OF TOTAL OBS.
	ILL	NORM.	MAT.	F.P.	NUT.	COMM.	NONE	TOTAL		
CHILD 1month	21.7	76.9	-	-	1.4	-	-	100.0	69	0.5
CHILD 1-12 months	61.5	30.8	-	-	-	-	77.7	100.0	13	0.1
CHILD 13-36 months	74.2	2.9	-	-	-	-	22.9	100.0	35	0.3
CHILD 3-13 Yrs	94.7	-	-	-	-	-	5.3	100.0	19	0.1
WOMAN Non-Preg.	52.3	10.2	0.7	13.5	-	-	23.3	100.0	3526	25.7
WOMAN Preg.or PP	2.6	1.0	89.1	2.4	-	-	4.9	100.0	1103	8.1
MAN	67.5	-	-	-	-	-	32.5	100.0	40	0.3
GROUP	5.0	1.0	7.9	1.0	-	-	85.1	100.0	101	0.7
CONTACT NOT CLASSIFIED	20.0	-	2.5	-	-	-	77.5	100.0	40	0.3
NO CONTACT	3.1	0.8	4.9	3.6	-	-	87.6	100.0	8745	63.9
TOTAL FUNCTION OBS.	16.5	3.6	10.5	5.9	-	-	63.5	100.0	13691	100.0

seen. With the recent introduction of a more structured family planning routine tied to various points in a womans reproductive cycle it will be interesting to observe how much this will increase the family planning input. Table 3.11 provides further details for both cohorts about the components of the womens services contacts.

In the final table (Table 3.12) data obtained by recall is summarized for "out-of normal-working-hours" activities which were not included in the work sampling study. In effect, these are mostly the "emergencies" or "night calls" of the FHW for week days and week-ends. The activities are presented both in numbers of persons served and in time spent in the entire cohort. To obtain the average activities of each FHW the numbers should be divided by 4 in the CC+WS+FP cohort and by 3 in the WS+FP cohort. The direct service contacts are separated by the function of the contacts, again reflecting a preponderance of illness care. Although small, there appears to be a definite difference between the two cohorts in emergency maternity care as well as other services. The probable cause may be the difficulty in supporting emergency care in the WS+FP cohort which is around 20 miles from the Narangwal headquarters.

In summary, the limited tabulations presented here can only illustrate the types of data that are becoming available for analysis. Considerable effort lies ahead to translate the large volume of data into meaningful indicators of the Narangwal services and their relation to the results of these services.

Table 3.11

PERCENTAGE DISTRIBUTION OF FHW WOMEN'S SERVICES CONTACT OBSERVATIONS BY FUNCTION IN TWO COHORTS FOR 1971.

TYPES OF WOMEN'S SERVICES CONTACTS	CC+WS+FP COHORT	WS+FP COHORT
Illness	52.9	40.5
Normal	8.1	8.0
Antenatal	11.6	13.7
Natal	0.7	3.4
Postnatal	3.4	3.1
General Maternity	1.2	1.5
Pre - F.P.	2.9	4.0
F. P. Service	2.6	2.8
F. P. Follow up	2.4	3.6
General F. P.	0.3	0.4
Other	13.9	18.9
Total Contact Observations (%)	100.0	100.0
Total Contact Observations (No.)	4940	4629

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AVERAGE DAILY AND WEEKEND "OUT OF REGULAR HOURS" ACTIVITIES OF FHWs EXPRESSED AS TOTAL PERSONS SERVED OR TIME SPENT PER DAY OR WEEKEND (DIRECT SERVICE CONTACTS SEPARATED BY FUNCTION).

CC + WS + FP COHORT	DIRECT SERVICE CONTACTS							
	ILL	NORM.	MAT.	F.P.	OTHER	STAFF CONTACTS	OTHER ACTIVITIES	TOTAL
No. Persons Served (Week days)	1.6	0.2	0.6	0.1	2.2	0.2	-	4.9
Amount of Time in minutes (Week days)	26	17	23	3	14	3	15	101
No. Persons Served (Week end)	4.9	-	0.7	1.2	-	0.5	-	7.3
Amount of Time in minutes (Week end)	84	-	11	20	-	14	10	139
WS + FP COHORT								
No. Persons Served (Week days)	1.2	0.3	0.3	0.1	0.2	-	-	2.1
Amount of Time in minutes (Week days)	17	2	4	1	1	-	4	29
No. of Persons Served(Week ends)	1.7	-	-	0.6	-	-	-	2.3
Amount of Time in minutes (Week ends)	30	-	-	11	-	-	3	44

CHAPTER FOUR

STUDIES IN THE DELIVERY OF MATERNAL, CHILD HEALTH AND FAMILY PLANNING SERVICES IN NARANGWAL.

SUMMARY.

1. A general account of the system whereby MCH/FP services are delivered at Narangwal and recapitulation of our findings upto the present time, is given.

2. Two service innovations introduced during 1971/72 are described:
   a) Service details of a new methodology for integrating family planning with maternal and child care. An approach which is delegated to the nurse auxiliary through standardized operational instructions for each occasion and content for F.P. interviews and education. The steps for introducing, supervising and evaluating this service are described. This new methodology is designed to give wider coverage than the system used in the past (c.f. 83% 2 monthly coverage of all eligible women: 19% actual coverage under the old system).

   b) Revised child care schedules: Certain modifications in child care routines in Pakhowal villages have been introduced this year to bring them more into line with reproducible service requirements.

3. A quantitative assessment is given of maternal, child care and F.P. services.

4. The service is largely delegated: One AFM serves a population of 1325 under supervision one day in seven from a lady health visitor, and is also visited weekly by a physician. One male F.P. educator works between 4 such subcentres.

5. Coverage: 75% of eligible women; 100% of women over 50; 94% of children under 3 years and 29% of children of 3 to 14, receive preventive or curative services within a 2 months cycle.

6. The allocation of services between child care, womens care and family planning is measured.

7. Preventive to Curative Care contacts: 57% : 43%. Home to clinic care (items of service): 40%: 60% are measured both in terms of patient contacts and time expended while giving services.

8. Two Monthly Fertility Survey is the largest single item of womens care (49% of all preventive services given to women). It covers within a 2 month period 65% of eligible women. One third of all home visits made for this purpose are unfruitful owing to patients absence from their hom especially for seasonal work in the fields. It is suggested that exclusion of women below 20 and above 40 years of age from this survey would reduce the workload by 27% and miss early diagnosis of pregnancy in only 7% of cases.

9. The largest single item in preventive child care (40% of all service items) is monthly wellbaby examination (Morbidity survey).

10. Family Planning. Thirty percent of preventive womens service visits relate to family planning. 68% of home visiting for F.P. purposes is given to preacceptance interviews, 18% to followup. Whereas in the clinic the main item is prescription and giving of contraceptives (49% of F.P. time), 35% to followup, and 16% to preacceptance interview.

11. Comparison of family planning experience in Maloud (WS + FP) and in Pakhowal (WS + CC + FP). A steeper rise in F.P. acceptance this year in Maloud subcentres and lower drop out rate was associated with more overall F.P. time spent by the Maloud F.H.W. especially in preacceptance and followup interviews in the patients homes.

12. Maternity Care. The great majority of resident mothers have their pregnancy diagnosed and receive antenatal care from the project's staff. 31% of mothers deliver outside the village; a further 43% come to the village for their confinement in an advanced stage of pregnancy and do not always undergo A.N. examination.

13. In 91% of all patients examined antenatally, the project policy of advance categorization for obstetric risk was being fulfilled. In 8 percent of these, categorization was incorrect. While 45% of antenatal cases belong to the normal low risk category, enquiry into 117 perinatal deaths revealed that of this group 74% belonged to high risk categories. Whereas the intricacies of obstetric categorization have been mastered by the F.H.W., subsequent reference of high risk cases to the physician is not being carried out (30% referred; July to December 1971).

14. 31% of all confinements are now attended by R.H.R.C. staff, who are also consulted in 60% of abnormal maternities which terminate in perinatal death (Perinatal death survey September 1970 to March 1972).

15. 60% of all services (WS, CC or FP) are given in the clinic: 56% to women, 44% to children.

16. Clinic service consist for the most part of curative care (86% of all clinic items of service). During a 2 month cycle 66% of all children in the community below 3 years attend the clinic (mostly for weighing): 29% of older children, 100% of women over 50 and 32% of eligible women mostly attend for illness care.

17. 90% of curative care is managed unaided by the F.H.W. By following operational instructions for referral laid down in standing orders she transfers 8.6% of sick children and 11% of women to the care of the physician.

18. The referral rate is especially high in children aged below 3 (25.4%), and for eligible women (19.1%) while remaining low for older children and women over 50. 15% of eligible referrals are for family planning.

19. Referral rates or indices have also been estimated for patients who present to the F.H.W. with various types of complaint. A frequency list of ailments seen by the F.H.W. in her clinic is reported; lists of ailments referred from her clinic and seen by the physician, and the frequency of his final diagnoses are given. The clinical content and workload involved in the care of women in the over 50 group is critically examined.

20. The frequency of planned linkages of various service items (maternity, child care, womens care, family planning), and the frequency actually occurring in practice is examined and compared.

In last year's report the system was described whereby MCH/FP services are delivered in Narangwal: a system amenable to supervision, and therefore we believe, to replication also. A qualitative analysis of its component parts and underlying principles was given (see 1971 report pp 10-27).

This year, transition from description to quantification of services is attempted. It is believed this method may eventually provide a basis for rational assessment of those components which may be most useful to government services, lead to adjustments and pruning of the services on the basis of cost effectiveness, and indicate improvements which can be made to certain areas of the nursing and medical curriculae.

This section is undertaken in three parts. In part one a brief general account of the Narangwal system of services; part two describes innovations introduced since June 1971; part three gives a quantitative analysis of M.C.H. and F.P. subcentre services as delivered in the Pakhowal and Maloud groups of villages.

PART I: THE DELIVERY OF MCH/FP SERVICES IN NARANGWAL.

Introduction.

Womens services, child care and family planning are delivered in Narangwal through eleven experimental village centres. Three of these provide child care with family planning (population 3897), four women's services with family planning (population 4,900), and four others combined M.C.H. care integrated with Family Planning (Population 5;300).

1. Previous findings. A position was reached at the end of last year when study of interacting factors and various ways of putting into effect alternative programmes in the field enabled us to describe (1971 report pp 10-27) an internally consistent pattern of M.C.H./Family Planning Service that had proved viable in the field. The service had supervisory checks and balances built into it with a view to reducing loss of quality should the system be copied elsewhere in India. Field tested duties, roles, and work loads for each category of worker including the physician were defined.

Appropriate instruction manuals were being prepared. (The manual currently in use is available from Narangwal on request.) All manuals and standing orders remain under revision.

2. General description of services.

There are six underlying principles of these services:

i) Maximum delegation of responsibility to those with minimum training consistent with good care (delegation may extend beyond the subcentre health worker by using the indigenous midwife as a health team assistant).
ii) Removal of medical care & diagnosis as far as possible to the periphery.
iii) Delegation supported by good communications & medical back--up from the centre when required.
iv) Greater emphsis on preventive than curative care; early than late diagnosis; home contact over clinic contact.
v) The operation of a built in system of supervisory checks between all members of the health team to maintain quality.
vi) Community participation (community contribution to building, feeding programmes etc.).

3. The components of curative care.

Clinic visits: Simple remedies for ailments of women & children are given by the FHW. There are separate weekly visits for supervision by the F.H.W. & Physician. Thus every week day afternoon except Thursdays and Saturdays, the F.H.W. holds an outpatient clinic for women & children. This is associated with a feeding centre, which is the major programme for treating the malnourished child. The sub--centre is often a reception-consultation room 250 sq.ft. in size with an examination treatment room 100 sq.ft. appended. The equipment includes furniture, files, weighing scales, drug cabinet, kerosene stove and hand operated tubewell pump. Electricity is common. Supplies include drugs, dressings, instruments and stationery.

4. The components of preventive care.

4.1. Womens Services. Preventive care for women is a cyclical activ--ity repeating itself each time the patient returns to the non-pregnant non-lactating condition. The schedules comprising preventive womens care are:

i) Fertility Survey. Each potentially fertile women is visited every two months by the family health worker (FHW) for the purpose of recording her menses, detecting early pregnancies and screening for symptoms of cancer and other gynecological diseases. This survey also provides opportun--ities for the FHW to discuss contraceptive use with women.
ii) Antenatal care. Five visits are planned during the course of pregnancy, at which weight, height, BP, urine Hgb and abdominal examinations are made. At the last visit, the FHW accompanied by the indigenous midwife, goes to the home to make arrangements for delivery. High risk patients are identified and referred to the physician.

iii) Labour Delivery. Whenever possible the FHW observes labour and delivery is conducted by the dai. The FHW records the birth date, birth weight and condition of the child.

iv) Postpartum. Four visits are planned during the immediate puerperium at which time uterine involution, lochia, TPR, & lactation are checked.

v) Cause of perinatal death. Pregnancies terminating beyond the 28th week of pregnancy with foetal death, and deaths of all infants during the first week of life are examined by means of an "oral inquest" carried out by the physician.

4.2. Child Care. In contrast to womens agre, preventive care of the preschool child is a linear activity extending from enrolment on the first day of life into a regular system of weighing, through a series of preventive routines upto the age of 3. In summary form the preventive services offered under child care consist of:

i) Morbidity Survey. (Well baby examination.) At the time of a home visit once each month the FHW takes a detailed history and carries out a physical examination on each child 0-36 months old.

ii) Anthropometric Measurements. The FHW takes the weight of each child on a monthly basis for those 0-10 months old, every two months for those 5 to 17 months old, and every four months until the 36th month.

iii) Nutritional Education. Lecture demonstrations are given in the village by a special team, the FHW for that village playing a prominent role. Prenatal nutrition and iron are stressed to prevent iron deficiency of the new born. Mothers of nutritionally deficient children are given special teaching by the FHW, and village leaders are specially contacted.

iv) Dietary Advice. At the ages of 5, 6, 7, 8 and 9 months, two monthly until the 17th, and 4 monthly to the 36th months, the FHW takes a detailed dietary history, gives advice & records the data.

v) Day Care Centres. In some villages, during the harvest season day care centres were established and children were fed and tended by the village attendant, under the supervision of the FHW.

vi) Immunization. Tetanus toxoid is given to mothers to prevent tetanus neonatorum. A schedule including smallpox, DPT and BCG is followed by the FHW under supervision.

vii) Laboratory Tests. Haemoglobins are done routinely and stools tested as needed.

4.3. Family Planning Services.

i) Systematic follow-up to all Family Planning Users at the time of fertility survey (see above).

ii) Family Planning Advice to eligible couples who are not family planning users.

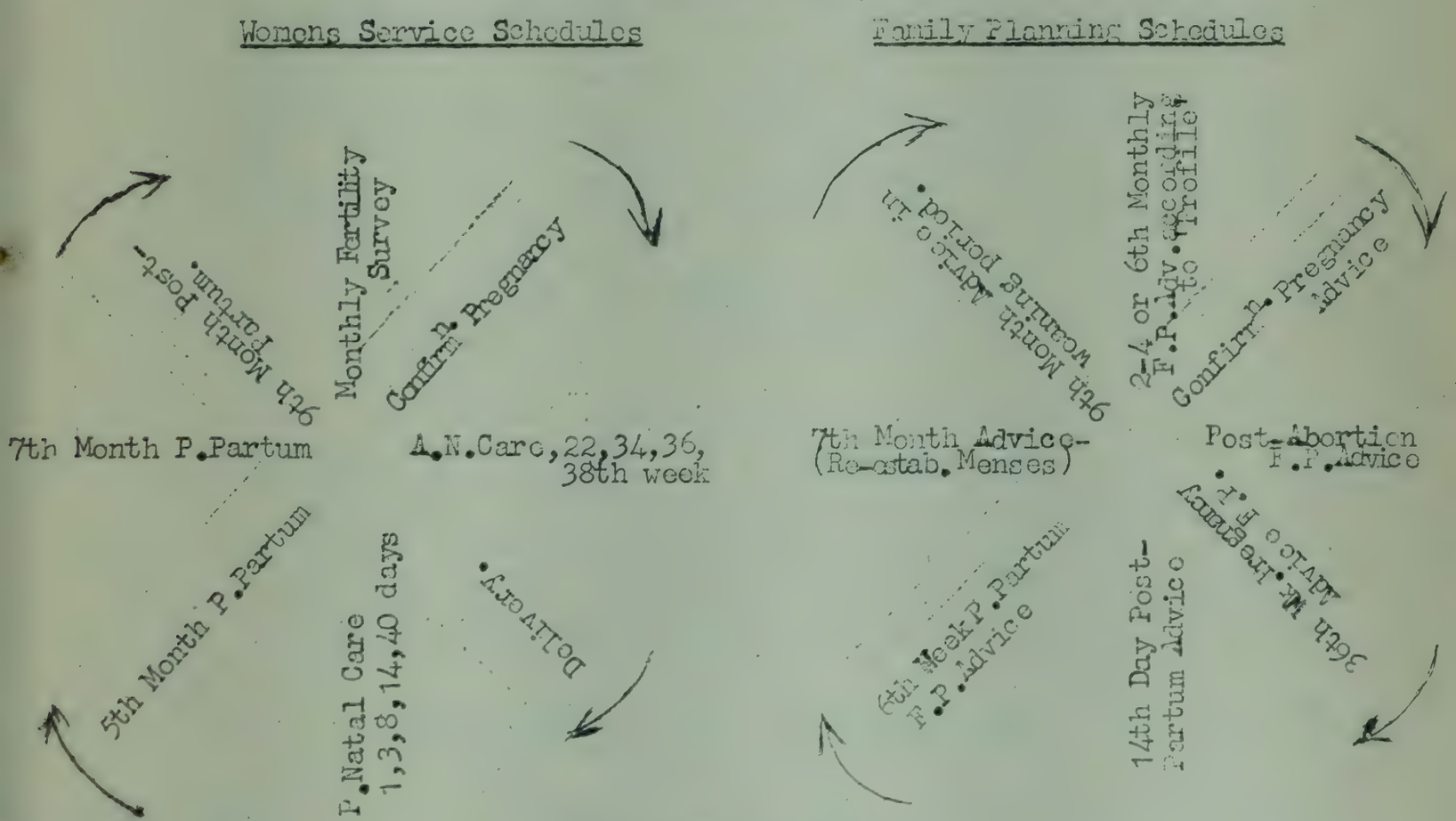
In addition to being taught to look for the family planning implications behind every clinical encounter, field workers are now required to recognise & offer standardised family planning advice on 8 obligatory occasions ("entry points") in the womens care cycle. In this manner all eligible women in the community receive cyclical family planning advice and come under constant family planning review. (See appendix:A, background paper entitled "Systematic Family Planning")

5. Planning the integration of family planning with M.C.H. services.

To avoid unnecessary duplication & repetition of visits, the integration of M.C.H. and family planning routines calls for planning so that each home visit becomes the occasion for multiple services, - maternal, child care or family planning, - to members of that household. In this way service schedules become visitorientated and not orientated to a particular service (see pp 121 et. seq).

6. In this way the FHW in the course of her afternoon clinics and morning home visits maintains a care cycle which keeps the community under constant surveillance.

DIAGRAM
THE NARANGWAL MCH/FP CARE CYCLE



Child Care Schedules

BIRTH: Birth Weighing.
Early N.Natal Care: 4 visits.
Routine Weighing & Diet Advice.
(Monthly: 2 Monthly, then 4 Monthly upto 3 years)
Feeding Programme.
Immunization: 14th day: 6,7,8th Month with booster.
Well baby examination & 'Milestones', 2nd, 3rd, 4th, 6, 7, 8, 9 Months then 2 Monthly, 4 Monthly to 3 years.

3 YEARS:

PART II: INNOVATIONS INTRODUCED TO THE SERVICES SINCE 1971.

SERVICE INNOVATION 1: SYSTEMATIC FAMILY PLANNING (Standardisation of approach and operational instructions.)

Introduction:

Hitherto family planning was given by an 'intuitive' low key approach, based on contact by the nurse auxiliary and male family planning worker with the patient or her husband, referral to the physician and follow-up of acceptors. Pressure tactics, economic & other incentives were avoided, no targets imposed. Recognition of natural opportunities for family planning were left to the worker's judgment.

Recognition of appropriate subjects and occasions for family planning may not be easy for a young unmarried nurse auxiliary. While not minimising the value of the intuitive approach (42% acceptance rate and 28% current user rate was reported last year) a more solid base has now been given to the service by teaching standardised procedures to the nursing auxiliary and paramedicals in the health team. The purpose of the new operational design is to contact a larger proportion of the eligible population with regular pre-acceptance F.P. advice than at present (19% contacted each 2 months.)

1.1 Systematic Family Planning. (Instruction delivered Nov.Dec. 1971; service introduced Jan. 1972; F.P. profiles of all eligible women recorded Feb/March 1972.)

The eligible population is divided into family planning users and non-users. Whereas formerly services concentrated on follow-up of users with less stress on pre-acceptance advice, standardised procedures are now introduced at identified entry points to womens services and child care, for obligatory family planning advice to be given to eligible women in the community who are not using family planning. The system is monitored by the field supervisors & physicians.

1.2. Users: Schedules for follow-up of couples using family planning.

New schedules for follow-up of F.P. users.

Slight modification in follow-up routines have been made with the purpose of linking F.P. follow-up visits with the two monthly fertility survey.

1.3. A methodology of supervision by the Field Health Supervisor (Lady Health Visitor) and the Project Physician has also been introduced to ensure regular follow-up of users.

1.4. Non-users. Continuous preacceptance F.P. advice throughout the care cycle to all eligible women.

New schedules for continuous preacceptance advice to non-users.

A two month sample of service records in Pakhowal and Maloud (Nov. Dec. 1971) showed that only 19% of eligible couples were recorded as being contacted for Family Planning. A new methodology is introduced which requires the F.H.W. to contact 83% of eligible women in the community each 2 months.

Description of method. (see appendix A.) In addition to those occasions on which patients seek family planning advice or which are instinctively recognizable as suitable F.P. opportunities, there are 8 obligatory occasions now prescribed on which F.P. advice must always be given. These are as follows:.

Obligatory occasions for giving F.P. advice in the women's care cycle.

i) Routine FertilitySurvey of non-pregnant menstruating eligible women in the community (according to F.P. profile - see below).
ii) Confirmation of pregnancy visit.
iii) Post abortion examination visit.
iv) 36th week antenatal examination by F.H.W. and F.H.S. together.
v) 14th day post partum examination (the topic of F.P. should be avoided before the ceremony on the 8th to the 14th day has been accomplished.
vi) 6th week post partum examination.
vii) Lactation: 7th month visit (re-establishment of menses).
viii) Lactation: 9th to 10th month visit (weaning).

On the above occasions F.P. advice is not given on its own but integrated with other components of M.C.H. care as follows:

Linkage of obligatory occasions with other service items.

1st: F.P. is given combined with enquiry about general health and menstruation at the time of Fertility Survey.
2nd: F.P. is given combined with 1st and 4th visit antenatal care examination at the confirmation of pregnancy visit, and 36th week visit.
3rd: F.P. is given combined with post-abortion care at post-abortion visit.
4th: F.P. is given combined with post partum and neonatal examination, as well as small pox and B.C.G. vaccination at the 14th day postnatal visit.
5th: Postnatal examination is given as well as F.P. combined with feeding advice, weight of baby & well baby check at the 6th week post partum visit.
6th: F.P. advice is given combined with dietary advice, well baby check and weighing at the 7th & 9th month post partum visit.

Appropriate spaces have been marked for these entry points on the patients fertility-cum-obstetric record card. These are ticked whenever the entry point is used.

1.5. Standardising the content of Family Planning Advice (see appendix 'A' "Systematic Family Planning").

The content of F.P. advice as well as the degree of urgency and frequency with which it is given, must match-

a) The patient's reproductive history (Family Planning Profile).

Factors determining the content of F.P. advice

b) The Family Equation as a whole, e.g. factors, such as premature displacement from the breast of a previous sibling by a new birth, the rearing of a premature, low weight, delicate or twin infant, poverty, alcholism, drug dependance in the family, possibility of disturbance to economic balance of the family by future pregnancy, etc.

c) The mother's health - e.g. chronic disease diagnosed by the physician, such as asthma, diabetes, epilepsy, heart disease, tuberculosis, siphylis, lunacy, etc.

d) The patient's attitude towards Family Planning: whether approver or disapprover.

The "Reproductive clock" for standardising interview procedures.

This cumbersome equation has been reduced to a simple operational instruction, on a 'Reproductive Clock' (see figure 4.1). The entry point and reproductive history is matched to the type of advice to be given e.g. education, motivation, or persuasion.

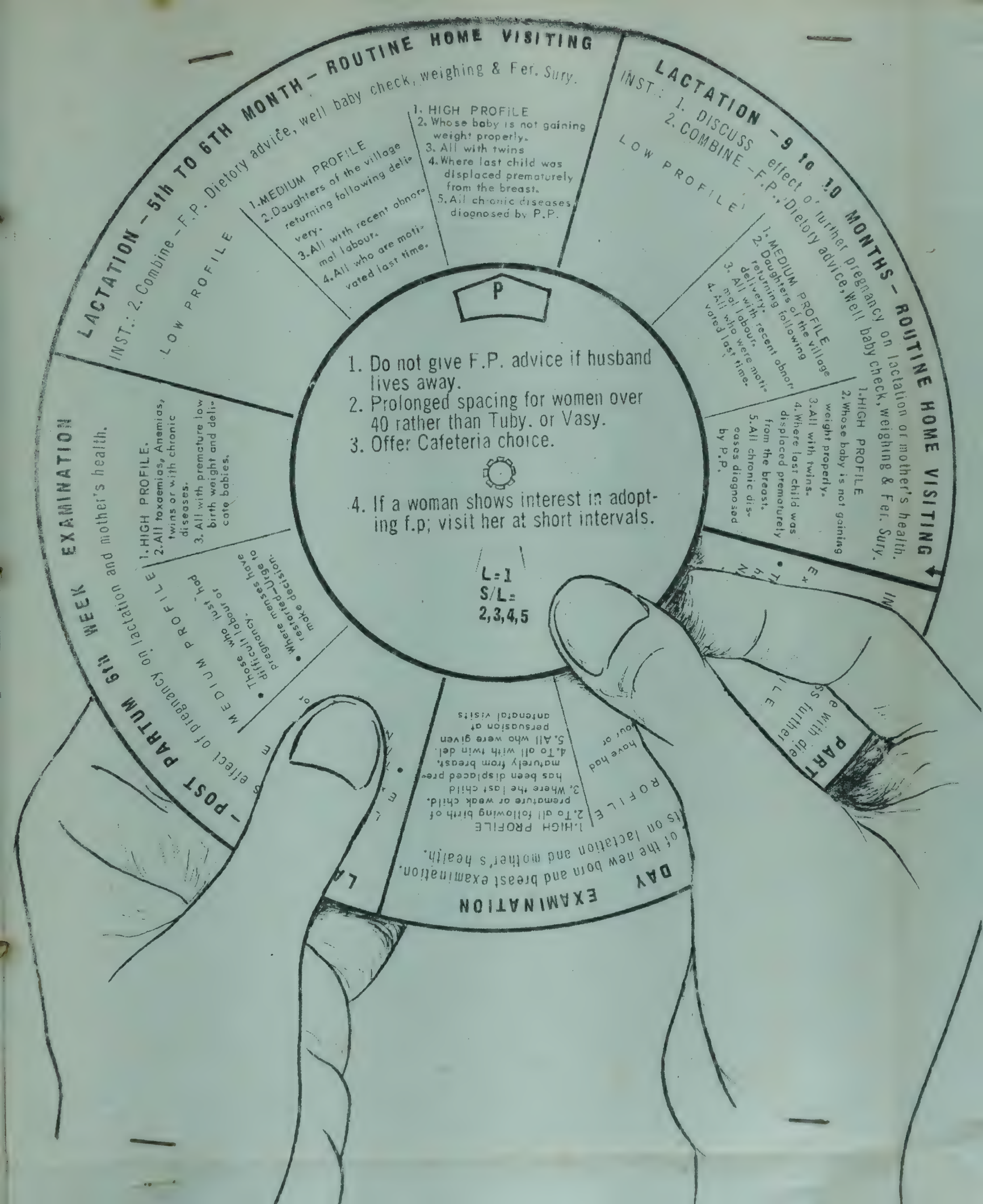
Thus advice which would be appropriate to a high profile patient suffering from heart disease might be ill considered given to a low profile case suffering from infertility or anxious to bear a son. Similarly F.P. advice appropriate 1 month before delivery might be inadequate a month later if a premature delivery of a weakly, underweight infant, or the birth of twins, had occurred in the meanwhile, making avoidance of further pregnancy a matter of urgency.

The "Clock" further instructs the F.H.W. whether advice should be for spacing or for permanent methods.

Supervision of systematic Family Planning.

1.6. Supervision: There will always be a drop in efficiency when mass services come to be developed from an original experimental pattern. A built-in system of checks and balances between the various categories of workers is required to maintain efficiency.

a) Meeting together of the subcentre nurse, the male F.P.W. and his supervisor, the L.H.V. nurse supervisor and the physician once a month, identifies current target couples (i.e. those for whom F.P. interviews related to antenatal, postnatal and other entry points are due), and reviews the outcome of interviews from the previous month. Thus a co-ordinated personalised approach to husband and wife is encouraged.


LACTATION – 5th TO 6TH MONTH – ROUTINE HOME VISITING
INST.: 2. Combine – F.P. Dietory advice, well baby check, weighing & Fer. Sury.
LOW PROFILE
1. MEDIUM PROFILE
2. Daughters of the village returning following delivery.
3. All with recent abnormal labour.
4. All who are motivated last time.
1. HIGH PROFILE
2. Whose baby is not gaining weight properly.
3. All with twins
4. Where last child was displaced prematurely from the breast.
5. All chronic diseases diagnosed by P.P.
LACTATION – 9 TO 10 MONTHS – ROUTINE HOME VISITING
INST.: 1. DISCUSS effect of further pregnancy on lactation or mother's health.
2. COMBINE – F.P., Dietory advice, Well baby check, weighing & Fer. Sury.
LOW PROFILE
1. MEDIUM PROFILE
2. Daughters of the village returning following delivery.
3. All with recent abnormal labour.
4. All who were motivated last time.
1. HIGH PROFILE
2. Whose baby is not gaining weight properly.
3. All with twins.
4. Where last child was displaced prematurely from the breast.
5. All chronic diseases diagnosed by P.P.
P
1. Do not give F.P. advice if husband lives away.
2. Prolonged spacing for women over 40 rather than Tuby. or Vasy.
3. Offer Cafeteria choice.
4. If a woman shows interest in adopting f.p; visit her at short intervals.
L=1
S/L=
2,3,4,5
– POST PARTUM 6th WEEK EXAMINATION
effect of pregnancy on lactation and mother's health.
1. HIGH PROFILE.
2. All toxaemias, Anemias, twins or with chronic diseases.
3. All with premature low birth weight and delicate babies.
MEDIUM PROFILE
• Those who just had difficult labour or pregnancy.
• Where menses have restarted – Urge to make decision.
DAY EXAMINATION
of the new born and breast examination.
is on lactation and mother's health.
1. HIGH PROFILE
2. To all following birth of premature or weak child.
3. Where the last child has been displaced prematurely from breast.
4. To all with twin del.
5. All who were given persuasion of antenatal visits
have had labour or
PART
e with further
S

NURSING HOME VISITING

b) Reminders for F.P. interviews are stamped on the patients service record card at the appropriate obligatory entry points. The field worker marks these to indicate whether they have been acted upon. The nurse supervisor verifies the A.N.Ms utilization of these opportunities by scrutiny of the record, and spot checking at the time of her weekly supervisory visit to the subcentre.

c). The physician before beginning his weekly patient referral clinic at the subcentre routinely questions the nursing auxiliary concerning newly confirmed pregnancies in her practice, newly discovered cases of child malnutrition, deliveries, post-natal visits patients whose menses have become re-established, etc.

1.7. Introduction of field test and evaluation.

Implementation of systematic family planning

General. While introducing this system every effort has been made to conserve the intuitive approach of the F.H.W. and male F.P. worker which has proved successful in the past. All patient contacts thus continue to be evaluated for their F.P. potential.

1.7.(1) Taking reproductive histories from all eligible women (Family Planning Profiles).

(a) Recording reproductive histories "Family Plann--ing Profiles".

The F.P. Profile of each eligible woman in the community, and her basic attitudes to F.P. are now inscribed in her record folder. In addition to carrying out her other subcentre duties the preparation of these "profiles" (at the time of the routine 2 monthly fertility review of eligible women) took the F.H.W. 2 months (Feb & March 1972) to complete (72% coverage) on a population of approximately 1800 (Maloud & Pakhowal). Each profile interview lasted about 5 minutes. Profile and attitude need revision following the birth of each additional child and this instruction is incorporated into "standing orders" for the 14th day postnatal visit.
(For detailed description of the F.P.Profile, read Appendix 'A')

(b)Instruction to field workers in new metho--dology.

1.7(2). Instruction to field workers in the recognition of entry points and use of standard interview procedures took six 1½ hour teaching sessions. After the lapse of one month a writ--ten test was held on the new methodology (Nov.&Dec. 1971).

(c)Introducing the 'Clock'.

1.7.(3). In addition to working instructions incorporated in the field manual & standing orders, each field worker has a reference "clock". The "clock" (see illustration) is readily intelligible to a paramedical worker, reduces the complex equation of profiles, attitude, position in the care cycle etc., to simple essentials, and gives instructions how to act.

1.8. Evaluation:

Evaluation.

a) Feedback of information on the implementation of the scheme by workers in the field is obtained from the monthly village meeting para 1.6(a) above.

b) Records of family planning acceptance & use have been maintained at Narangwal since the introduction of F.P. services 2 to 3 years ago. The effect on "acceptance curves" of transition from a purely 'intuitive' approach to the 'systematic' approach now under field test will be observed.

Jain
23.8.73

SERVICE INNOVATION 2: REPRODUCIBLE CHILD CARE SCHEDULES

In the course of last year certain modifications have been introduced into the child care component of MCH/FP services.

1. Curative Child Care Services.

Remain essentially unchanged i.e.

Curative Care

1.1 Daily clinics held by the FHW for all children 0-13 years of age at the subcentre.

1.2 Treatment in the home of those conditions found in the course of home visiting and which do not require professional judgment and/or treatment.

1.3 Referral either to the weekly physician's clinic or immediately of all those conditions requiring professional judgment and care.

For this purpose Standing Orders specifying symptomatic treatment and referral criteria are now available. These standing orders had originally been developed for the Child Care Services of the Nutrition Project.

2. Preventive and Health Promotive Care.

This part of the programme now comprises the following activities:

Preventive Care Schedules.

2.1 Well baby check, including morbidity history, physical examination and assessment of growth (Weight taking) and development (observation of milestones). Well baby checks are carried out at birth on the 3rd, 8th, 14th and 40th day and at the completion of 3, 5, 6, 7, 8, 9, 11, 13, 15, 17, 21, 25, 29, 33 and 36 months of life.

2.2 Vaccination and Immunization.

The following schedule is planned to coincide with other contacts which are routinely made in the care cycle of women and children:

i) Tetanus Toxoid to mother; 3 doses: combined with confirmation of pregnancy and obligatory F.P. 22nd & 36th week A.N. visits and obligatory F.P.

ii) BCG and Smallpox, as soon as practicable after the 14th day of life.

iii) DPT and Polio: at 6th, 7th, 8th month of life.

iv) Smallpox and DPT boosters: between 30 and 36 months of life.

2.3 Supplementary Feeding:
To provide 400 calories and 11 grams of protein as a diet supplement to all children whose parents wish to avail themselves of this service. A special effort is to be made to provide all malnourished children as detected by weight faltering with 2/3 (below 60% of the Harvard Weight for Age Standard) and 3/3 (below 50% of Harvard Weight for Age Standard) of protein and calorie requirements.

The present supplement - enriched milk and dalia- is to be replaced eventually by less expensive and more concentrated food preparations such as enriched biscuits, groundnuts, cakes etc.

3. Education:

Education on both group and individual bases will be undertaken as part of combined teaching of mother craft to all antenatal cases and mothers of children below the age of 3 years. The group sessions are to be organized, prepared and conducted by the FHW with the help of the FHS.

3.1 Individual: (In the course of Home visiting).
Diet advice based on the ideal feeding schedule at each chronological health check up to 3 years of age.
Health teaching is to be integrated at each home visit.

3.2 Group: The topics to be covered during the group sessions are to include:
i) Feeding and weaning of children.
ii) Prevention of disease; immunization.
iii) Spacing; family planning.
iv) Care of women during pregnancy.

Standing Orders.

4. A manual for the combined women's and child care service including standing orders for the treatment of most common conditions, a revised and simplified child care record system and detailed description of the individual service and research activities has been prepared.

PART III: ANALYSIS OF MATERNAL, CHILD CARE, AND FAMILY PLANNING SUBCENTRE SERVICES IN PAKHOWAL AND MALOUD VILLAGES.

Introduction.

In this section a quantitative assessment of certain components of MCH/FP subcentre care in the Pakhowal and Maloud villages is undertaken under the following headings:-

a) Material available.
b) Selected data on the community receiving services, and ratio of FHW to population served.
c) Population coverage by MCH/FP services.
d) Home visiting to clinic care.
e) Preventive to curative services.
f) Preventive care schedules, distribution and frequency.
g) Family Planning integration; contrast between 'intuitive' and 'systematic' methodology.
h) Maternity Care: General description of services.
Coverage of births in the area.
Antenatal care: identification of high risk cases. Labour, place of delivery, birth attendant, outcome and birth weights.
Postnatal care.

i) Transition from delegated to physician care(referral).
Standing orders for referral.
Frequency of clinical conditions seen by the nurse auxiliary in the subcentre.
Frequency of referral to the physician by sex, age, and clinical complaint (referral indices).

j) The clinical content of referred cases seen by the physician.
k) Integration and frequency of linkage of items of service in MCH and Family Planning.
l) Summary and Conclusions.

DATA. 1. DATA AVAILABLE.

i) A study using the previously developed functional analysis methodology (FANS) was set up in January 1971. Measurements of various activities of R.H.R.C. staff involved in providing health services in terms of time and interpersonal contact have been made. Material from the first full year of this study is available.

ii) Scrutiny of obstetric cards and research records from 2 village cohorts. (Kaloul and Pakouli: Population 11,200) for a limited period of 2 months (November/December 1971) in respect of all services, and for a 6 months period (July to December 1971) for maternal care.

iii) A study of utilization of maternity services carried out by two visiting graduates from the All India Institute of Medical Sciences at the beginning of this year. Service records from a one-in-ten percent selected sample of 217 mothers delivered in Kaloud and Pakouli between the 1st quarter 1971 and the end of that year. (The actual number of local and incoming deliveries reported in those villages during this period was 337). Only cases having 'complete' records were selected.

iv) Other data on the community obtained from reproductive histories (Family Planning Profiles) taken from 1221 women during February and March, 1972, from census, vital statistics, and the updated records of eligible women and children age 0-3 maintained for research purposes.

2. COMPOSITION OF THE COMMUNITY RECEIVING SERVICES.

		Pakhowal	Maloud
Population (re: census 1971/72 coverage 95%)	Males	2225	2466
	Females	2776	2188
	Total:-	5001	4654
Estimated population (100%)		5300	4900
Ratio of FHW to population served		1: 1325	1: 1485
Married women between 15-49 (approx: 90%)		972	784
Estimate (100%)		1000	800
Women over 50 year old		372	270
Children 0 - 3 years		454	
Children 3 years over (estimated)		1800	
Number of pregnancies terminating in November and December 1971		34	30
Number of women over 3 months pregnant who are eligible for A.N. Care during any two months period (est).		136	120
Postnatal and Neonatal cases upto six weeks post partum eligible to receive care during and two month period (estimate)		59	52

Distribution of married women by their number of living children

		Pakhowal		Maloud	
		No,	%	No,	%
Number of living children	0	81	11.28	71	11.31
	1	115	16.02	89	14.17
	2	101	14.07	88	14.01
	3	115	16.02	104	16.56
	4	100	13.93	109	17.36
	5	82	11.42	81	12.89
	6	63	8.77	44	7.01
	7	41	5.71	30	4.78
	8+	20	2.78	12	1.91
TOTAL:-		718	100%	628	100%

Caste Distribution

Castes	Pakhowal	Maloud	Both
Jats	52.1	42.6	50.8
Ramdasias	31.2	34.3	31.4
Others	16.8	17.1	17.8

Family Planning Profile by Caste.

	F.P. Profile				
	High	Medium	Low	Total	
Pakhowal					
Jat	163	58	106	327	
Ramdasia	144	35	78	257	
Others	43	22	38	103	
Caste not known	7	-	8	15	
Total	357	115	230	702	(coverage 72%)
Maloud					
Jat	126	69	87	282	
Ramdasia	87	37	59	183	
Others	57	29	28	114	
Caste not known	-	-	-	-	
Total	270	135	174	579	(coverage 73%)

3.1 COVERAGE OF THE COMMUNITY BY SUBCENTRE SERVICES.

Within a period of 2 months (November - December 1971) home visits were made to 94% of the Child population below 3 years and 70% of eligible women. One hundred percent of women above 50, 32% of those of eligible age. 66% of children below 3 years, and 29% of those above were seen in subcentre clinics. In this way the FHW in the course of her afternoon clinics and morning home visits maintains a care cycle which keeps the community under constant surveillance.

Coverage of female population.

Coverage of female population by R.H.P.C. womens services. Maloud & Pakhowal, Nov. - Dec. 1971.

Area	Percentage of Women 15-49 years Home	Clinic
Pakhowal	78%	32%
Maloud	73%	27%

Percentage of Women over 50 years		
Area	Home	Clinic
Pakhowal	Nil	122%
Maloud	Nil	78%

Coverage of child population.

Coverage of Child Population by R.H.R.C. Services
November - December 1971 (Pakhowal)

	Home	Clinic
% of children 0-3 years	94%	66%
% of children >3 years	Nil	29%

The large clinic attendance of women over 50 (see Pakhowal table above) suggests the use of the subcentre by visitors or people from adjoining areas. The extent to which other sources of medical care are utilized by the community is not known although these will form the subject of enquiry in the coming year, pretests for which were done in March 1972 (EANS).

One or two physicians per community development block of 80-100000 population makes it essential that MCH/FP is a delegated service. Our referral rate of 11% women and 8% children to the physician during this 2 month period indicates the degree of delegation of which the MCH/FP service in Pakhowal is capable.

3.2 HOME VISITING VERSUS CLINIC CARE: PREVENTIVE CARE AND EARLY DIAGNOSIS VERSUS CURATIVE CARE.

Introduction.

Stress on prevention, early diagnosis and treatment, on home visiting rather than attendance at a clinic, prepares the ground for health education, well baby care, supplementary feeding programmes, immunization and ante-natal services. If patients are contacted in their homes rather than awaiting their attendance at a clinic later in the disease when morbid processes are less amenable to the treatments of the auxiliary, medical care can successfully be delegated to non-medical members of the health team.

3.2(1) The proportion of womens services delivered through the clinic and through home visiting.

Home visiting versus clinic in womens services.

Women services for all age groups (preventive & curative) are equally divided between home and clinic. Women of eligible age however, who receive 3 times as many services as those in the over 50 groups (1810:668) are chiefly served through home visiting. This balance is

maintained by limitation of services for the over 50s to the clinic, although there has proved to be no need to enforce this policy.

Total number of women receiving services(Pakhowal & Maloud)
(November December 1971)
By age group & place of service

Age	Clinic	Home	Total
15 - 49	529	1281	1810
50+	668	Nil	668
Total:-	1197	1281	2478

Thus subcentre clinics tend to be crowded by women of the over 50 group suffering from chronic respiratory, arthritic & other conditions. (cf. 1521 visits over 50 to 1206 15-49 in 2 months period). Indeed as shown above, this segment of practice probably attracts patients from other areas.

Women Services visits: Pakhowal and Maloud
November-December 1971.

Age	Clinic attendances	Home visits	Total
15 - 49	1206	1699	2905
>50	1521	Nil	1521
Total:-	2727	1699	4426

Turning to Child Care in Pakhowal (MCH/FP) we see a similar pattern in which most services to children below 3 years are given at home, whereas in clinics illness care visits to older children preponderates. Limitation of services for older children to the clinic has not deliberately been enforced.

Child Care Visits Pakhowal: November-December 1971 by age and place of visit

Home visiting versus clinic in child care services.

Age	Clinic	Home	Total
Children <3	505	865	1370
Children >3	618	Nil	618
Total:-	1123	865	1988

DEM 130
1206

3.2(2) Division of Time.

12 months work sampling of direct service time to women and children in the entire cohort (Pakhowal MCH/FP) indicates that although more of the F.H.Ws time is spent in her clinic than in home visiting (of 73.6 : 47.1 minutes per day per 1000 population - mpd/1000), home care preponderates for children's services below 3 years (22.1 : 17.3 mpd/1000).

Division of time between home and clinic (WS & CC)

Division of F.H.W. direct service time between womens and child care services and between home and clinic (Pakhowal - 12 months) (in minutes/day/1000 rates in total cohort)

	Child care	Women services	Total
Home visiting	24.5	22.6	47.1
Clinic	32.1	41.5	73.6
Total:-	56.6	64.1	120.7

F.H.W. division of time between children below and above 3 years (Pakhowal 12 months.)

	Children < 3	Children >3	Total: rates.
Home	22.1	2.5	24.6
Clinic	17.3	14.7	32.0
Total:-	39.4	17.2	56.6

Curative versus Preventive care

3.2(3) Division between curative & preventive care (Pakhowal MCH services.)

i) Time

The clearly felt need in villages is for curative care. More F.H.Ws time is given to this than to prevention (of 408:234 minutes/day/cohort of 4 villages) and older children and women over 50 coming for illness care predominate as clinic attenders.

ii) Clinic attendances

Clinic attendances
(Pakhowal - lowest for December 1971)

Age	Children	Age	Women
< 3 years	299	15-49	317
> 3 years	528	> 50+	453

Preventive care, however, consumes less time, and is given to 57% of all persons served by the FHW: her patient contacts are equally shared between preventive and curative work. Moreover preventive services reach out to much larger segments of the population, covering 93% of children 0-3 and atleast 75% of eligible women within a 12 months period.

iii) Comparison of populations covered by curative and preventive services.

Division of curative & preventive care to women & children (Pakhowal) - Persons Served.

	Preventive	Curative	Total
Children	1383	911	2294
Women	955	837	1792
Total:-	2338	1748	4086

Patient Visits.

	Preventive	Curative	Total
Children	2210	1721	3481
Women	1011	1779	2790
Total:-	3221	3500	6271

iv) Comparison of time spent in curative & preventive care- between Pakhowal and Maloud.

Nearly twice as much of the FHWs direct service time is given to curative compared to preventive womens care (39.4:24.7 minutes/cohort day/1000 popn.) and to clinic compared with home visiting in the Pakhowal cohort. (In Maloud her time is exactly equally divided between preventive and curative care, as also between the home and the clinic)

Womens services - 12 months survey
(Rates in minutes per cohort/day/1000 popn.)

M A L O U D

	Preventive	Curative	Total
Clinic	7.5	24.1	31.6
Home	24.5	7.8	32.3
Total:-	32.0	31.9	63.9

P A K H O W A L

	Preventive	Curative	Total
Clinic	8.9	32.6	41.5
Home	15.3	6.8	22.6
Total:-	24.7	39.4	64.1

3.2(4) Preventive Care - service schedules.

Preventive services comprise neonatal care, well baby examination, routine weighing & anthropometry, dietary advice, antenatal & postnatal examination, family planning, 2 months fertility survey. These services are mostly delivered in the home. Preventive services are assigned as follows:

Preventive Care service schedules: womens and child care services.

Breakdown of womens and child care preventive services
(November December 1971)

(PAKHDWAL - visits & items of service as percentage of all preventive services given)

i) Distribution of items of service.

Preventive womens services 38%			Preventive Child Care 62%		
Antenatal care	117	10%	Neonatal care	128	6%
Delivery	9	1%	Morbidity (well baby) survey:	826	40%
Postnatal care	128	10%	Anthropometry	426	21%
Family Planning	376	30%	Dietary Advice	688	33%
Fertility survey	606	49%			
Total:-	1236	100%		2068	100%

Preventive care schedules in womens & child care service.
Fertility Survey.

ii) Fertility survey.

Introduction:

The nurse auxiliaries' influence in her community is related to her 'medical presence' being felt through the repetitive contact of the fertility survey, well baby examination, and her use of the obligatory family planning entry points.

One of her principal tasks is a constant review of all women of reproductive age in her practice. The completeness of this review rests on maintaining an up-dated list of married women in the community between the ages of 15 and 49. Instructions on how to do this are given in the work manual, and her work is supervised by the nurse supervisor and physician on their weekly visit to the subcentre.

Review at 2 monthly intervals of all non-pregnant women combines an enquiry about health, follow-up of family planning users, and questioning about menstruation and lactation. This contact identifies high-risk families where pregnancy has supervened while a child is on the breast. It facilitates early diagnosis of pregnancy with arrangements for follow-up. Attention is paid to early diagnosis of intermenstrual, post-coital, menopausal, or

post menopausal bleeding and other disturbances of menstruation. The FHW can also discuss methods of F.P. when indicated.

Where it is the custom to seek brides from other villages the contact is also an occasion for the F.H.W. to find out about daughters returning to the village for confinement. Instructions for management and referral of these groups are set out in the FHW manual and standing orders.

The fertility survey is the largest single item of service in womens preventive care. (49% of all preventive services given). Service records show that within a 2 month period, coverage of the eligible population in the villages of Maloud & Pakhowal was 57% and 65% (November December) respectively. 85% of the fertility surveys in these two cohorts were up-to-date at the time of review, in the sense that regular visits were being made as scheduled.

It was the occasion for a total of 1511 home visits in both cohorts (in November December 1971). Because patients are frequently absent from their homes especially for seasonal workingin the fields, on 319 occasions no contact was made necessitating 141 repeat visits in order to complete 1192 surveys. Each FHW makes between 7 and 8 home visits each day for this purpose, of which about one fifth prove unfruitful.

Age specific fertility rates below the age of 20 &over 40 are so low that exclusion of these age groups from the survey while reducing the FHWs work load by 27% (for fertility survey) would only miss early diagnosis of pregnancy in 7% of cases.

Morbidity - Anthropometric survey.

iii) Anthropometric survey.

Introduction:

With recording the birth weight, each child in the community is enrolled into a system of 'well-baby' care based on routine weighing and monthly checks during the first three years of life. Weighing comprises a quarter of all preventive child care services.

Anthropometric Measurements (Pakhowal)

87 surveys were carried out at home (November-December 1971) mostly weighing of new born and 339 in the clinic (2 children weighed per diem). 32% of the children under 3 were weighed within the 2 months reviewed and 86% of the surveys were found complete and up-to-date at that time.

Children whose position is found to falter on the weight curve are enrolled in a rehabilitation feeding programme for which during the past year the community has provided much of the feeding stuffs.

iv) Morbidity Survey.

Morbidity Survey - (Well baby examination).

This is the largest single preventive child care activity (40% of all items of preventive service). It ensures that childhood illness and failure to thrive is detected at an early stage.

423 home examinations were made in Pakhowal during the 8 week period reviewed: 4.2 completed surveys per diem. The coverage of 0-3 child population during this period was 93%, and 79% of surveys were complete and up-to-date (Nov. Dec. 1971).

Dietary Survey and Dietary Advice.

At the same time as the child is weighed (see Anthropometric survey), the FHW takes a dietary history, records the data, and gives nutritional advice to the mother.

The survey was completed on 160 children, comprising 35% of the 0-3 child population, and advice given to 386 mothers (mothers of 85% of child population) - Pakhowal Nov. &December 1971. This is the second largest single item of service in the child care programme: 33% of all preventive child care schedules. It is always linked with other services viz. weighing, well baby examination, fertility survey, post partum or weaning period F.P. advice.

4. THE FAMILY PLANNING COMPONENT OF MCH/FP SERVICES.

The intuitive method.

In Nov.-Dec., 1971, 30% of all preventive womens service visits include items of Family Planning. Yet in the course of the same two months family planning reported contacts in Pakhowal appear to have been made with only 19% of eligible women in the community. The population coverage in Maloud was 13%.

Allocation of time between F.P. advice, service, and follow-up.

In Pakhowal during all of 1971 60 percent of F.P. home visiting time was given to preacceptance F.P. advice, 12% to service, 20% to followup. In the clinic 49% F.P. time was given to service, 11% to preacceptance advice, 36% to follow-up.

In 1971 there was a steeper increase in Family Planning acceptance in Maloud villages. Whereas the acceptance rate in Pakhowal still remains higher, a greater number of women cease to practice so that the F.P. user rate in Maloud persists at a higher level.

Fifty-two percent more overall time is given to family planning in Maloud. Time divided in the clinic between preacceptance interview service and follow-up is similar in both cohorts. Significantly less time is devoted to preacceptance and follow-up interviews in the patients home in Pakhowal and could be casually related to the lower F.P. acceptance and drop out in that cohort. Is diversion of the F.H.Ws time into the additional workload of child care at variance with the unhurried approach required for family planning education, reassurance and advice?

Family Planning Services
Comparison: Maloud & Pakhowal cohorts
12 months sampling in minutes/day/1000 population

Differing patterns for F.P. services in Pakhowal and Maloud.

	Pakhowal			Maloud		
	Home	Clinic	Both	Home	Clinic	Both
Pre-acceptance interviews etc.	1.9	0.5	2.4	2.9	0.6	3.5
F.P. Service	0.4	1.5	1.9	0.6	1.6	2.2
F.P. follow-up	0.5	1.1	1.6	1.8	1.0	2.8
Total:-	2.8	3.1	5.9	5.3	3.2	8.5

Systematic Family Planning.

Systematic Family Plann--ing: coverage of eligible women.

Steps by which the new methodology was introduced this year were discussed earlier (also see appendix A). Assignment of low, medium and high profiles to all eligible women in the community showed the following distribution:

Distribution of Family Planning Profiles
(Maloud and Pakhowal Feb/March 1971)

	Pakhowal (coverage 72%)		Maloud (coverage 73%)	
High	357	50%	270	46.5%
Medium	115	16%	135	23%
Low	230	32%	174	30%

Family planning acceptance among these categories does not vary significantly between the two areas:

PERCENTAGE OF ACCEPTORS BY THEIR 'F.P.PROFILE'

	High	Medium	Low
Pakhowal	59.9%	56.0%	23.6%
Maloud	57.4%	52.3%	26.6%

Coverage of the eligible population by new F.P. methodology

The standardised operational design of the new methodology is planned to contact a larger proportion of the eligible population with regular preacceptance F.P. advice.

Full implementation of the new service would during the course of every 2 month cycle should contact 83% of eligible women.

The following estimation is of actual numbers of eligible women whom the FHW is now required to contact within each 2 month period (assuming profile distribution on 72% of population is representative of the whole).

Two monthly cyclical coverage by new F.P. services
Pakhowal
(1000 eligible women: 290 F.P. users).

Family Planning Service.			No. of persons contacted.
2 monthly follow-up:	all F.P. users		290
Preacceptance advice.	Entry points through	A.N. care (126x2)	57
	" " "	P.N. care (59x2)	118
Entry point No.1, 6 monthly	(through F. Survey)	low profile (32% of 533)	57
4	"	Medium " (16% of 538)	43
2	"	High " (50% of 533)	269
(83% of eligible couples).		Total:-	834

5. MATERNITY CARE.

INTRODUCTION: General description of services.

Diagnosis of pregnancy.

Confirmation of pregnancy during the course of fertility survey leads to 4 further antenatal visits at the 22, 34, 36 & 38th week. Antenatal routines as far as possible are stripped of meaningless rituals: a logical content for each visit is defined. The central purpose of antenatal care is advance identification of high-risk cases, and this is within the capacity of the nurse auxiliary. Instructions for referral and for general safeguards are laid down for each risk group, based on present abnormality, past obstetric history, and variables such as age, stature and parity.

High-risk group.

Antenatal care.

Cover or safeguard (medical "back-up") for potentially abnormal labour varies from a medical presence in the area to presence of the physician at the patient's bedside. The auxiliary completes her final examination with the onset of labour. Normal cases are conducted by the indigenous midwife, who throughout pregnancy has been present with the auxiliary nurse for antenatal examination, especially at the final visit to the patient's home at the 38th week. This has its own special educative value, being the occasion on which the room for delivery is chosen, instructions given for its cleaning, and the cleaning of all rags and household articles likely to be needed during the delivery and reception of the newly born child.

Preparation of the home for delivery.

Five other elements in antenatal care are stressed:

(1) The management of associated ailments and diseases of pregnancy.

(2) Emphasis on restoration of health in the mother, with the administration of iron and vitamin supplements, routine antihelminthics, and tetanus toxoid.

(3) Education on the health, nutrition, and hygiene of the unborn child.

(4) Education in family planning whenever this forms an inseparable part of good medical care. Family planning advice is obligatory at the time of confirmation of pregnancy at the 36th week, 2 weeks post partum after the 8th to 14th day ceremonies are completed (for post abortion) - at the 6th week of the puerperium and again when menses are restored at the 7-8th month after delivery. Appropriate advice on these occasions geared to the family F.P. profile - etc. are indicated by use of the FHWs 'Reproductive Clock'. The FHW use of these entry points is supervised by the FHS.

(5) The care of other siblings. Routine weighing of other 'at risk' siblings below 3 years, whose care and nutrition may be affected by the supervening pregnancy replaces weighing of the mother.

Back-up and cover.

2. With the auxiliary nurse living in the village, the physician at the primary health centre, and the nurse supervisor at an intermediate point it is possible to provide round-the-clock cover for high-risk cases. Analysis of "out of regular hours" activities of the FHW reveals that she is called on an average to one maternity case per week during night and evening time. The auxiliaries' manual gives details of simple classifications of 'danger signals' in labour, with appropriate instructions for management and definition of these conditions for which medical aid must be sought.

A system of rapid communication is required between more remote areas and the primary health centre. Unless help can readily be summoned in emergency the community will look to alternative indigenous sources.

Puerperium

3. Postnatal and neonatal care are continued in a routine of 4 visits to mother and child during the 1st fourteen days. At each neonatal-postpartum visit immediate referral is also required in a check list of 14 conditions including jaundice, green vomit, abdominal distension, blue baby, fits, cord conditions, fever or hypothermia.

4. Analysis of maternity services (Pakhowal & Maloud)

Three sources of data are available:

Source A: Womens service & obstetric records of all maternities during the 6 months period - July 1-Dec. 31, 1971 (Sr. Vohra) yield data on 246 maternities to incoming, outgoing and local parturients. (Total births recorded by V.S. survey in this period were 252)

Source B: A report on 247 deliveries during an approximate period of 12 months from early 1971 to end of that year, (incoming & local parturients only). This study was carried out in Jan/Feb. 1972 by two visiting graduates from All India Institute of Medical Sciences.

Source C: The management and treatment of 183 maternity cases at Pakhowal and Maloud during 8 months period (from Sept. 1- April 30, 1971) see 1970/71 annual report pages 23-25. During the first half of 1971 new womens service routine were introduced. The second half of 1971 represents a stabilised period.

Coverage of population.

Coverage by R.H.R.C. services of total births in Maloud and Pakhowal (July to Dec., 1971: local, incoming and outgoing parturients).

(Total birth events reported by the V.S. survey for this period were 252 of these 201 (80%) received R.H.R.C. antenatal care, and records relating to pregnancy or delivery were maintained for 246 cases).

Age of parturients.

Age distribution:

Age distribution of 247 parturients (Source B) was as follows:

Age group	Number	Percent
15-19	24	9.7
20-24	91	36.8
25-29	83	33.6
30-34	37	14.9
35-39	8	3.2
40-44	2	0.8
Non-recorded	2	0
Total:	247	99.8

Pregnancy Diagnosis (Its relevance to the Abortion Act.)

Pregnancy diagnosis and the Abortion Act.

The 2 monthly fertility survey routine should disclose gestational amenorrhea within the first 8 weeks of pregnancy. Yet only 16.4% were diagnosed within the first trimester (Source B). (The completeness of the survey was 85% in Pakhowal and 87% in Maloud villages November-December 1971).

Early recognition of pregnancy is essential if the Abortion Act is to be available to women living in rural areas. Termination of pregnancy before the 8th week is a safe and easy procedure; between 8 and 12 weeks associated with greater blood loss; beyond 12 weeks it becomes dangerous to carry out from below and is subject to different statutory requirements under the Act.

Standardisation of family planning interview procedures this year at Narangwal now require education on the Abortion Act to be given to suitable categories at the time pregnancy diagnosis by the F.H.W. (2nd family planning entry point). For this reason the 1st antenatal examination is now carried out as soon as amenorrhea is reported in preference to awaiting confirmation of pregnancy by abdominal palpation.

Antenatal care.

Ante-natal care

Coverage by antenatal services is ensured by early disclosure of pregnancy to the FHW through the fertility

survey. Despite 31% (52/167) of local mothers so examined eventually delivered elsewhere and a further 43% (87) of all confinements came from other villages at an advanced stage in pregnancy, antenatal supervision in the village was given to 201 cases i.e. 80% of all parturients whether incoming, local or outgoing.

Of those given antenatal care, 73% were examined on 3 or more occasions (average 3.5 visits: service manual requirement 4 visits) Hgb. estimations (Tallquist) were done in 50% on one occasion and 48.2% on 2 occasions (Source B).

Tetanus Toxoid, always included in the antenatal schedule of the 4 Pakhowal villages, was introduced to Maloud (7.8.71). Forty-five percent of mothers delivered in Pakhowal and Maloud in 1971 (Source B) were given one or more injection of Tetanus Toxoid.

Identification of high risk cases and their referral.

Identifying the 'high-risk' mother.

Advance identification of potentially abnormal labour is the central activity in antenatal care. Rules for categorising obstetric risk factors were taught in Nov/Dec., 1970 and introduced early in 1971. Comparison of data from sources A, B & C illustrates the gradual adoption of this policy since its introduction.

The percentage of pregnancies in which obstetric categorization by the F.H.W. was carried out in the ante-natal period.

	No. of cases	% of all cases	
Sep. 1970 to Apr. 30, 1971	331	44%	Source C
Jan. to Dec. 1971 of all cases	247	74.5%	" B
July 1 to Dec. 31, 1971 of all cases (local, incoming & outgoing)	246	73%	" A
July 1 to Dec. 31, 1971 (of all cases examined antenatally).	201	91%	" A

The categories assigned were as follows:

	Source A July-Dec. 1971 (201 cases)	Source C Sept. 70-Apr. 71 (146 cases)
Category I (normal cases)	45%	38%
Category II (Obstetric abnormal-ity in current pregnancies).	5%	4%
Category III (Bad obstetric history),	15.5%	18%
Category IV (Stature, age, parity & other variables).	34.5%	40%

55% cases were assigned increased risk categories. In 8% examination of the records revealed categorization to be incorrect. (Compare 21.9% of Source B cases from earlier in the year). 23% of high category patients were referred to the project physician and 30% to the F.H.Supervisor. Survey of 117 perinatal deaths between September 1970 and March 1972 showed recognizable obstetric risk factors during the preceding pregnancy in 78%. The comparatively sophisticated methodology for identifying high risk cases can be taught and successfully implemented by nursing auxiliaries (of 91% coverage). Although referral of all high risk cases to the physician is required by 'standing orders', this is not being completely implemented.

Labour

Delivery.

Place of delivery, birth attendant and outcome:

From July to Dec.,1971: 44 percent of parturients were delivered at home.
18 percent of parturients were delivered outside the village.
31 percent of parturients came for delivery to their maternal home in the village.
7 percent of parturients place of delivery was not recorded (Source A).

Ninety-five percent (235:247) were domiciliary confinements. 31% of all local & incoming birth events were attended by a member of the RHRC staff (cf.23% in 1971 report:23% source B report).

There were 11 still births (4.5%) recorded among 247 deliveries. Birth weights were taken after 168/185 (90%) of births occuring in the Pakhowal & Maloud villages(Source A 2nd half of 1971).

78% (139) of weighed new born infants were above 2500 gms.
22% (29) " " " " " " below 2500 gms.
7% (10) " " " " " " below 2000 gms.
(Source A)

Postnatal care

Postnatal care was given to 182 out of 185 mothers delivering their child in the village (90%) (SourceA). Three or more postnatal visits were made in 70.1% of cases (average 3.3 visits) (Source B). At only 13 post-natal visits was the giving of F.P. advice recorded (7%).

6. TRANSITION FROM DELEGATED TO PHYSICIAN CARE: REFERRAL.

The subcentre clinic: attendance and services.

During the course of 2 months, clinic services are given to the following segments of the community. (based on Nov.Dec.1971 sample).

Population attending the subcentre clinic: the type of services they receive.

66% of the child population under 3 years (sick children or for regular weighing)
29% of older children (illness care)
32% of eligible women (illness, antenatal care or F.P.)
100% of women over 50 years (illness care)
86% of the FHWs services to clinic patients are for curative care (2603/3040 items of service: Nov.Dec.1971).
56% of all clinic services were to women (56%); especially women over 50 years of age (30%).

Curative care to children	32%
Curative care to women 15-49	23%
Curative care to women > 50	30%
Weighing of children	11%
Antenatal services	1.1%
Family Planning Services	2.1%
	100%

Standing orders for referral: 'Referral Points':

Standing orders.

The ANM is taught to take a history; conduct an examination by observation or touch, vaginal examination, pulse, use of thermometer, blood pressure machine, urine and Hgb. examination; to refer to her "standing orders" for direction on management of the case, to explain the condition to the patient and record what she did. She is also taught to recognize shock, dehydration and allergic reactions.

Referral points.

"Standing Orders" classify symptoms and associated physical signs which the F.H.W. can elicit. For each symptom complex nursing care, appropriate drugs and treatments are described, when to refer to the physician (referral points) or nurse supervisor (L.H.V.) or transfer the patient to the health centre.

According to the patients condition referral may be immediate, the same day, 24 hours later, in 3 days, at the next physicians visit, after 1 month.

In addition to obstetric "danger signals in labour" there are 21 obligatory situations for which immediate physician assistance is sought: dyspnoea, irregular pulse, cyanosis, unconsciousness, shock, dehydration, convulsions, pain in the eyes, the ears, in the abdomen (if sudden, or with distension, fever or vomiting), fever of certain degrees or duration, colicks, photophobia, allergic reaction, childhood diarrhoeas with dehydration, bleeding under specified circumstances, fracture, snake bite, certain dog bites, burns of face or with skin destruction.

Referral indices for women and children.

This system leads to referral of 8.6% of all sick children and 11% of women (Nov. Dec. 1971). Considered by age groups the system ensures a higher referral rate for illness among children under 3 (25.4%) than older children (2.8%). A higher rate for eligible women (19.1%) than older women (7.3%). (18% of referrals from the eligible group are for family planning.)

THE CLINICAL CONTENT OF THE FHWs SUBCENTRE CLINIC:

Frequency of clinical conditions seen in the subcentre by the nurse auxiliary.

The clinical Content of the FHWs Subcentre Clinic.

In 15% of cases the complaint was neither defined nor recorded. Fever (9%) and respiratory infections (21%); ear, nose and throat (10%); alimentary troubles mainly diarrhoea in children; constipation and indigestion in adults (12%); skin (6%) and eye (3.6%); complaints and musculoarthritic conditions in older women (6%) are the common currency of subcentre practice. Recurring middle ear infections, a consistent feature in about 5% paediatric cases, was rarely diagnosed in adults.

Frequency list of symptomatic diagnoses among 3191 FHW clinic attendances (Nov.-Dec., 1971).

"Diagnoses"	CHILDREN <3 No.	%	CHILDREN 3+ No.	%	WOMEN 15-49 No.	%	WOMEN >50 No.	%	TOTAL No.	%
Fever & general infections	76	17.6	128	17.9	38	4.4	66	6	308	9%
Headache	1	0.2	17	2	56	6.0	66	59	140	
Injuries	7	1.6	32	4.5	5	0.5	20	1.8	64	
Nutritional deficiency	3	0.7	-	-	-	-	-	-	3	
Eye	18	4.2	23	3.2	21	2.3	54	4.8	116	4%
ENT(common cold, ear)	65	15.2	83	11.6	81	9.8	109	9.8	338	10%
Cough & L & U Respn.infection+CPS	85	19.8	187	26.3	162	17.2	254	22.7	688	21%
Musculo--arthritic	1	0.2	11	1.5	64	6.9	112	10	188	6%
Blood, Anemia	19	4.4	7	1	16	1.7	1	0.1	43	
Skin	19	4.4	76	10.6	62	6.7	52	4.7	209	6%
Gynae & G.U.	1	0.2	2	0.3	46	4.9	24	2.2	73	
Alimentary	66	15.4	57	8	118	15.7	155	13.7	396	12%
Cardiovascular	2	0.5	-	-	23	2.5	29	2.6	54	
Illdefined or unrecorded	69	14.2	91	12.7	243	26.1	173	18	576	15
Totals:-	432	100	714	100	935	100	1115	100	3196	

CLINICAL CONDITIONS REFERRED BY THE ANM TO THE PHYSICIAN (NOV.-DEC., 1971)

Clinical conditions referred by the F.H.W.

All children with lower respiratory disorders, and 29% of adults with these complaints were referred to the physicians. Forty-two percent of skin complaints in children under 3 & 9% of these in adults; 18% of children under 3 with fever & general ailments; 14% of this age group suffering from diarrhoea; and 11% with ENT & eye complaints, were referred to the physician.

Referral indices:

The degree of management of illness care by the auxiliary nurse and her referral of patients to the physician is an index 1) to the delegation of clinical responsibility achieved by the service, 2) to the sharing of the total volume of work by distribution of man power within the health team, and 3) a means of evaluating the utilization and suitability of standing orders.

Expressed as a proportion (referral index) of all persons served it indicates the degree to which clinical responsibility is delegated; expressed as a proportion of patient attendances it indicates the sharing of the volume of clinical work by man power assignment within the team.

Referral

Referral indices.

	Persons	Attendances
Children and Women	0.10	-
All children	0.086	-
All women	0.11	-
Children age 0-3 " " "	0.254	0.12
" " 3 " " "	0.028	0.024
Women 15-49 " " "	0.191	0.075
Women >50 " " "	0.073	0.036

Type of "Diagnosis"

Type of patient	Un-known	Gener-al + other	Eye,Ear Upper Resp.	Lower Resp. & C.V	Mouth	G.I.	G.U.	Skin	Mus.-skele-tal	Injury & acci dents	Total
Child <3											
Seen by FHW	61	107	144	4	20	66	1	19	1	7	430
Seen by Dr.	0	19	16	5	0	9	0	8	0	0	57
INDEX	0	0.18	0.11	1.00	0	0.14	0	0.42	0	0	0.13
Child 3+											
Seen by FHW	80	163	281	2	10	57	2	76	11	32	714
Seen by Dr.	1	4	5	2	0	1	0	4	0	2	19
INDEX	0.01	0.02	0.02	1.00	0	0.02	0	0.05	0	0.06	0.03
Women 15-49											
Seen by FHW	187	341	320	44	50	214	79	166	98	18	1467
Seen by Dr.	15	27	11	13	1	8	30	13	8	3	129
INDEX	0.08	0.08	0.03	0.30	0.02	0.04	0.38	0.08	0.11	0.17	0.09
Woman 50+											
Seen by FHW	208	373	532	83	63	234	34	94	164	32	1818
Seen by Dr.	8	9	2	23	0	5	1	6	3	1	58
INDEX	0.04	0.02	0.004	0.28	0	0.02	0.03	0.06	0.02	0.03	0.03

CLINICAL CONTENT OF PHYSICIANS REFERRAL CLINIC (July 1971- - Jan. 1972)

A separate record maintained by the project physician of all patients (778) referred for physicians advice in sub-centre clinics between July 1971 & Jan. 1972 was discussed each week by a group of physicians. Specific diagnoses were reached as often as possible and agreement on the type of investigation & treatment appropriate for subcentre practice.

Referral

One hundred & forty-six (146) children were seen during this six months period (18% of referrals). 60% were under 3 years: a reversal of the proportion of this age group in the community (children 3: 3 - 66%:34%).

In the under 3 group the pattern of diagnosed disease was as follows:

i) Referred Paediatric Problems.

Marasmus	20%
Chronic Otitis media	17%
Upper resp. infection	14%
Lower " " (Pneumonia, Bronchiolitis one case of TB)	14%
Skin complaints: boils and impetigo	12%
Diarrhoea	6%
Other	5%
Undiagnosed	12%

In the small sample of older children (46) with the exception of one case of tuberculosis, severe respiratory disease was seldom seen; otitis media was less common. No case of malnutrition was referred. Skin complaints, injuries and diarrhoea were the commonest referred ailments. There was a patient with rheumatic fever-treated with steroids and long term penicillin. Progress was monitored with serial ESRs. Only 2 cases had to be referred to the health centre. Management in the home and subcentre was carried out in the remainder.

It is difficult to believe this tiny residue represents the complete tally of 6 months serious illness in a child population of 2345. The enquiry later this year into the utilization of medical care from other sources will help to answer this question.

Family Planning.

ii) Referred F.P Problems.

12.7 percent of referred patients (99) in the clinic came for family planning. All new cases referred (79) accepted a F.P. method (28 depo-provera: 11 oral: 36 IUD) - a measure of the effectiveness of preacceptance F.P. advice already given by the FHW - Twenty percent were referred for follow-up problems which could not be handled by the FHW.

Womens Services (excluding maternity)

iii) Referred problems in womens care.

302 women aged 14-49, 103 over 50, were referred to the physician between the end of July 1971 and January 31, 1972.

After medical consultation 86 cases (21%) including 32 with abdominal pain, remained undiagnosed.

Chronic respiratory conditions were the commonest identifiable referral (16.7%) and the chief complaint in the over 50 age group (37%) while gynaecological illness (16.7%) was commonest among women of eligible age (21%).

Skin (9.3%); ear, nose and throat (6.9%); musculo-skeletal (5%); Gastrointestinal tract (2.7%) and eye complaints (2.5%) with a residue of 40 cases suffering from a wide range of diagnosed illness including injuries, anaemias, breast pathology, hypertension and diabetes, composed the rest.

Pulmonary tuberculosis was diagnosed in 14 patients over the age 50, enabling measures to be taken to protect other members of their household. See frequency list of diagnosed conditions given below:

Frequency List of Morbidity among referred cases: Women Services (excluding F.P. & Maternity).
(86 cases undiagnosed, including 32 suffering from non-specific abdominal pain)

Respiratory Condition	
Bronchitis	33
Bronchiectasis	1
Tuberculosis	14
Asthma	20
Skins	
Urticarial rashes	8
Scabies	3
Ringworm	4
Boils & Furunculosis	19
Ecxzema	3
Fungal infections	1
Musculo-skeletal	
Arthritis	15
Sciatica	6

Eyes

Trachoma	2
Conjunctivitis	2
Weakness of vision	1
Squint	1
Corneal opacity	1
Cataract	3

Gynaecological diseases

Vaginitis	20
Dysfunctional bleeding	16
Infertility	11
Cervical erosion	2
Carcinoma of cervix	1
Utero-vaginal prolapse	8
Menopausal syrdrome	8

Ear, nose & throat

Nasal polypi	1
Sinusitis	2
C.S.Otitis media	2
Otitis externa	3
Upper respiratory catarrh	17

Gastro-intestinal

Helminthiasis	7
Diverticulosis	1
Amoebiasis	3

Breast

Cracked nipples	3
Carcinoma	1

Miscellaneous

Infected wound; discharging sinus	
Dog bite	10
Anaemia	15
Diabetes	3
Hypertension	3
Smallpox	1
Bells Palsy	1
Urinary Infection	1
Piles	2

7. THE INTEGRATION AND FREQUENCY OF LINKAGE OF ITEMS OF SERVICE IN MATERNAL, CHILD CARE AND FAMILY PLANNING.

In delivering MCH/FP care one-third of all contacts are for preventive services: 87.6% of these are made in the home. Needlessly repetitive home visiting is avoidable if maternal, child care and family planning components of the service are linked as often as possible. In this manner schedules become 'visit orientated' rather than 'service orientated'.

It would require 34 visits for a patient and her family to complete a notional care cycle lasting 3½ years, starting six months before conception, following the patient through pregnancy and delivery to the puerperium, with management of lactation weaning and care of the infant upto the 36th month. A single item of service would be given at only 10 of these 34 visits. At the other 22 the frequency of linkage of multiple services to mother and child would be distributed as shown in below:

THEORETICAL FREQUENCY OF LINKAGE OF THE COMPONENTS OF MCH/FP CARE SCHEDULES REQUIRED BY THE SERVICE

(3½ year care cycle: 34 visits)

Items of service:	1	2	3	4	5	6	
No. of visits:	10	6	4	11	1	1	Total: 89 items of service

THE LINKAGE OF SERVICES IN A 3½ YEAR MCH/FP NOTIONAL CARE CYCLE

Visit No.	Time of visit.	Content of visit.
1	Preconception:	Fertility survey
2		Fertility survey
3		Fertility survey & Family Planning (4 or 6 monthly according to the patients F.P. profile)
4	Pregnancy:	Confirmation of pregnancy & F.P. advice: Dietary Advice, well baby examination+ weighing (age /3) (If abortion occurs: postabortion examination +F.Planning advice)
5		22 weeks A.N. care & Dietary advice Well baby weighing and examination(age/3)
6		34 weeks A.N. care+Dietary advice Well baby weighing and exam (age /3)
7		36 weeks A.N. care+Family Planning advice
8		38 weeks A.N. care

Visit No.	Time of visit	Content of visit.
9 10	Natal	Delivery: Well baby examination & weighing 3rd day: examination of neonatal and postnatal care
11	Puerperium:	8th day: examination of neonatal & post natal care
12		14th day: Family Planning advice: BCG/ Small Pox: Well baby examination+post--natal care.
13		40th day: Family Planning advice: Well baby examination + postnatal care
14	Lactational:	- 3 months post partum: Dietary advice: well baby examination and milestone check.
15		Fertility survey: 5 months post partum: Dietary Advice: DPT/Polio: weighing: well baby examination.
16		Fertility survey: 6 months post partum: Dietary Advice; DPT/Polio, weighing well baby examination.
17		Fertility survey: 7th month postpartum: Family Planning advice if monses restored Dietary Advice: DPT/Polio: weighing: well baby examination and milestone check
18		Fertility survey: 8th month postpartum: Dietary advice; weighing; well baby examination and milestone.
19		Fertility survey: 9th month postpartum: dietary advice: weighing and well baby examination and milestone.
20(4 visits)		Alternate months fertility survey: dietary advice: weighing & milestone (at the 11th: 13th: 15th: 17th month) (+F.P. according to profile)
24(9 visits)		Every 2 months from 19th to 36th month Fertility Survey(combined with F.P, advice according to profile) Combined on alternate visits i.e. 4 month--ly, with well baby examination, weighing, dietary advice and milestone examination.

The following are the actual frequency of linkages between various services within child care or within womens service and family planning. Data concerning linkage of child care to the other services was not available for this report.

ACTUAL FREQUENCY OF LINKAGE OF CHILD CARE ACTIVITIES
(Nov. - Dec. 1971 Pakhowal)

A C T I V I T Y

ACTIVITY	Ill-ness Care	Immuniz--ation.	Morb: Survey	Anthro pometric Survey.	Dietary survey or advice.
Illness care	18	0	33	1	3
Immunization	0	0	0	0	0
Morbidity Survey	33	0	50	23	435
Anthropometric Survey	1	0	23	15	1
Dietary Survey & advice	3	0	435	1	6
Morbidity and Anthro--pometric Survey	6	0	0	0	36
Morbidity and Dietary Survey or Advice	239	2	0	0	0

Note No.1: Neonatal visits which are always associated with a post-natal visit to the mother are not included above.

Note No.2: Combinations of 4 different activities during one home visit occurred 6 times and have been excluded from the above table, i.e. morbidity+A.M.+Diet.+Ill=5
" +Immu.+ " + " =1

ACTUAL FREQUENCY OF LINKAGE OF WOMENS SERVICE ACTIVITIES
(Nov.-Dec. 1971 Pakhowal)

A C T I V I T Y

ACTIVITY	Illness care.	Ante-natal	Post-natal	Family Planning	Fertility Survey
Illness Care	0	0	35	2	75
Antenatal	0	78	0	1	4
Postnatal	35	0	90	3	0
Family Planning	2	1	3	95	172
Fertility Survey	75	4	0	172	316
FP & Fertility	39	0	0	0	0

DISTRIBUTION OF SINGLE OR MULTIPLE ACTIVITY HOME VISITS IN RHRC CC + WS + FP AND WS + FP COHORTS DURING NOVEMBER & DECEMBER 1971
(From service Records)

Activities per visit	CC + WS + FP COHORT.		WS + FP COHORT
	Children >3	Women 15-49	Women 15-49
One	80	579	531
Two	496	292	232
Three	283	39	26
Four	6	0	0
Total visits	865	910	789

SUMMARY

A quantitative assessment is given of maternal, child care and family planning services delivered through four village subcentres to a population of 5300(Pakhowal). Certain comparisons are made with a womens care and family planning service provided for a separate community twenty miles away in Maloud (Population 4900).

Delivery of health care is delegated. Ninety percent of all curative care is managed(without assistance)by the Auxiliary Nurse Midwife. One A.N.M. serves a population of 1325 under supervision (one day in seven) from a Lady Health Visitor and visited weekly by a physician. A male family planning educator advises within these four villages.

A longitudinal model of the service has been constructed using the three dimensions of time in giving services, number of patient contacts, and their clinical and service content. The age, caste, sex, parity and 'family planning profile' of the population has been matched against those segments of the community using the service. It is found that seventy five percent of eligible women, 100% of women over 50, 94% of children under three and 29% of children 3-4, receive preventive or curative care from the Auxiliary Nurse Midwife within two months.

Assignment of service components between maternal care, family planning, child care under 3 years, and general illness care to all age groups is calculated. Preventive to curative care (57% : 43%), home to clinic care (40% : 60% of all services), is measured and compared. The operation of certain policies, (viz: identification of high and low risk obstetric patients in 91% of all cases receiving antenatal care), and population coverage by an innovative approach to Family Planning are quantitatively evaluated. (Actual coverage of eligible population every 2 months under old methodology was 19%:83% in the design of the new).

The clinical content of medical care delegated to the A.N.M. is studied. The transition point between delegated auxiliary care and physician care is measured.

The proportion of patients ultimately referred to the physician coming from different types of attenders at the A.N.M's clinic (19% of eligible women; 7% of women over 50; 25% of children under 3; 2.8% of children over three), and suffering from various groups of complaints is identified (referral indices) and from this the extent is shown to which delegation of care is achieved in different segments of subcentre practice.

The medical problems referred to the physician and the final residue of identifiable illness which he sees, are listed.

Lastly, the linkage between items of service in maternal, child care and family planning is calculated and the extent shown to which these linkages are carried out in practice.

CONCLUSION

Analysis shows the degree of delegation of care, coverage of the at risk population, and completeness of service tasks and schedules that is achieved (Fertility survey 85%, Morbidity Survey 79%, Anthroponetric Survey 80% etc.) It further indicates how with appropriate planning and linkage of routines and frequency of delivery geared to community need, a preventive and curative service can be sustained by an auxiliary nurse, under weekly supervision from a Lady Health Visitor, with a physician available in the background to deal with more serious health problems (10% of curative practice) and provide administrative, supervisory and instructional leadership to the health team.

Certain problems are also uncovered. What is the justification for heavy investment in curative care for women over 50 suffering from a hotch-potch of minor ailments with a low referral rate: headache, constipation, indigestion, cough, musculo-arthritic and skin affections, or chronic and incurable conditions? If other aspects of health care are accorded higher priority what is the feasibility of limiting services for this age group to emergency and exceptional care only. Could the ANMs services thereby be liberated to cover a larger population of eligible women and children?

A more fundamental question is raised by comparison of family planning acceptance and service time given to home preacceptance interviews in Maloud and Pakhowal. If "effectiveness" is measurable by family planning acceptance it may be argued that diversion of time to child care could adversely affect the family planning programme.

Whereas referral indices seemingly indicate satisfactory delegation and functioning of standing orders, closer study reveals a failure of some policies. While the auxiliary has mastered the intricacies of high risk obstetric case identifi--cation, it is seen that she fails to refer these problems to the physician. Is this monotonous list of chronic and minor illness the total clinical residue of six months curative medicine in a practice of 2,345 children and 1,707 women?

To what extent is medical aid for major illness sought from other sources by villagers who, having observed an auxiliary in their midst supported by a weekly visiting physician, choose only to consult her for chronic and minor complaints? Do they see in a research organization a staff one step removed from full service commitment? While succeeding in regular performance of well baby and antenatal examination, fertility surveys, measuring and weighing rituals, and maintenance of good records does the project in some measure fail to provide committed care?

CHAPTER FIVE

THE FAMILY PLANNING ONLY CELL

SUMMARY

An additional cell made up of four new villages was added to the project during the past year. The program in this cell consists of family planning only, thus fulfilling the requirements of the original project design. Staffing of these villages with appropriate staff (non-medical Junior Basic teachers) has been completed, baseline surveys mounted and preliminary contacts with villagers made.

The major components of the program in this cell include population education, direct family planning motivation, and delivery of family planning services and followup. Individual, group, and mass approaches are to be used. Comparability of family planning services with other cells of the project will be attempted. Successful innovations in the family planning only cell will be introduced into the other cells.

Background

Within the research design as originally stated there was the provision for a cell in which only family planning services would be delivered without accompanying health services. The implementation of this particular cell was delayed for a variety of reasons. First, it was the opinion of many that in India family planning in isolation from health care was not a viable alternative. Second, there was considerable discussion as to the precise definition of "family planning only". Finally however, the family planning only cell was implemented during this past year.

Selection of villages

In the fall of 1971 the villages in three development blocks adjacent to Narangwal were scouted in order to choose the four villages for the new cells. The major criteria for selection were:

1) Accessibility- The villages should not be at too great a distance from Narangwal in order to maintain adequate supervision and communication. They should be accessible during the entire year including the monsoons.

2) Demographic- Total population, caste ratio, and literacy should be comparable to other cells.

3) Other Services- The villages should not have any dispensary, subcenter or other health service within them and should not be near a primary health center.

4) Family Planning Acceptance- The level of family planning acceptance should not be too much above the average of the other villages already in the study at the time services were started in the latter.

5) Cluster- The villages should be clustered in a group which would permit easier supervision.

The four villages were chosen in the latter part of December 1971. Selected data comparing these villages to the other cells of the population project are given in Table 5.1. In January 1972 the social scientist held a series of meetings with the Panchayat members and informal leaders in these villages, introducing them to RHRC, its objectives and programs, the kinds of activities envisaged in this cell and its limitations (the major one being the absence of any medical care at all). The panchayats were also asked for help to locate housing facilities for the workers and for clinic space.

Staff

Whilst negotiations went on, issues about the kind of worker for the cell, activities envisaged, and programs for training of the workers recruited engaged our attention. It was decided to have a non-medical woman with training as a Junior Basic Teacher(JBT). She was to be called a Family Planning Educator (FPE) and was to be posted one per village. A non-medical individual was considered desir-able so that she would not be in a position to give medical care. In addition a JBT was considered a good alternative to an ANM(the basic worker in other cells) since she would have the same number of school years. Her background in education was an added factor since she would be involved in population education programs as part of her activities. One male FPW was to be assigned for all the villages, similar to other cells of the study. The immediate supervisor of the 4 FPEs was to be a woman with masters level training in education or social sciences. Actualy delivery of family planning services (e.g. insertion of IUCD, etc., and followup) was to be provided by the visit of an FHW and physician once a week to each village. Overall direction of the activities of the cell was to be provided by the physician and a social scientist.

Advertisements placed for FPEs had a tremendous response indicating a large reservoir of individuals with JBT training. The FPEs were selected on the 1st of May 1972 and immediately started an 8 week training program. In the meantime renovations were made in the houses selected and the clinics in each village were equipped for F.P. services.

Table 5.1

Basic Information About the Five Cells of the Population Project

	Population			Scheduled Castes			Percentage	Literate			Literacy	No. of	No. of
	Male	Female	Total (a)	Male	Female	Total (b)	of b/a	Male	Female	Total (c)	Rate c/a	houses	House-holds.
CC+FP	2403	2060	4463	962	828	1790	40.10	956	537	1493	33.45	685	708
WS+FP	2568	2243	4811	866	759	1625	33.77	877	441	1318	27.39	788	849
CC+WS+FP	3042	2571	5613	923	773	1696	30.21	1141	626	1767	31.48	967	1073
FP only	2821	2509	5330	796	743	1539	28.87	1199	781	1980	37.14	874	899
Control	2575	2323	4898	929	701	1630	33.27	1152	762	1914	39.07	791	829

Note: The information is based upon the 1971 Census of India.

CC = Child Care; WS = Women's Services

Program

An innovative feature of the family planning only cell has been the womens' meetings held in these villages. Although the Panchayats had given their approval to the program we thought it desir-able to inform the women about the program and ask what they would like us to do (as long as it would not violate the research design). The main demand was for medical care which we had to politely but firmly refuse. It continues to be a demand we are having to resist. We have not found a demand for literacy classes despite our constantly reminding our womens' groups that the girls are teachers and available to them if they would like to learn to read and write. At one time we had contemplated combining functional literacy with F.P. in the cohort. But this met with the criticism that the cell would then not be a "FP only cell". This factor in combination with the cool reception given to all suggestions that the women use the FPE's to learn to read and write have dampened our initial enthusiasm about a literacy program.

The FPEs took up residence in the villages in July 1972. They had prepared lists of eligible couples by that time. The first visits they made consisted of introducing themselves, their tasks and answering questions related to their work. Subsequently they have started to draw up family planning profiles for each eligible women and to give appropriate F.P. messages to the women. At this point monthly visits are contemplated to each eligible couple. We have found it necessary to introduce the concept of priority ratings along-side that of the F.P. Profile. As the F.P. profile is more reflective of obstetric considerations, a demographic measure of how great the need for F.P. practice of a couple is also being elaborated.

At the time of each household visit the FPEs are:

1) writing visit schedule remarks in Punjabi because of their limited expression in English,
2) maintaining daily diaries-recording memorable interviews and difficulties,
3) keeping records (vital statistics and F.P. acceptor's lists) maintained in other cells.

The current records in use will be reviewed and any changes deemed necessary introduced after a 3 months trial.

The FPW has also begun his share of duties. We expect him to hold group meetings among men and show F.P. films once a month in these villages. He continues to be under the supervision of the social scientist.

Population Education

Population education is usually associated with exposure of school and college going young people to demographic variations and consequences of overpopulation. In rural India a largely illiterate non-captured audience is to be reached with the same message and the immediacy and urgency of the problem of overpopulation without recourse to formally established institutions. The F.P. alone cell contemplate using:

1) An individual approach- Once a month visits to all eligible women with advice suited to the individuals and in the context of the couple's needs and conditions.

2) A group approach- Fortnightly group meetings are to be arranged, initially in two of the villages. Session plans and tools of evaluation are being prepared and pretested.

3) A mass approach- Monthly film shows are to be arranged. At a future date puppet shows are to be started. Both these will primarily have F.P. messages.

Family Planning Services

A weekly F.P. clinic has been started in each village, conducted by a RHRC physician and a FHW. The clinics shall provide the full range of contraceptives available in RHRC as in the other cells. Minor ailments occuring amongst the F.P. acceptors will be treated by simple palliative measures. The decision whether to treat women complaining of infertility has yet to be resolved.

The family planning services are to be as similar as possible to other cells of the project. Certainly more time will be spent in education and motivation. However it is contemplated that successful innovations developed in the F.P. only cell will be transferred to, and used in the other cells, thus making thefamily planning inputs in all cells comparable. Although quantitative and some qualitative differences will persist, the latter will be measured by the Functional Analysis studies and used when the data from this cell is analyzed.

Data Collection-

By early June 1972 houses had been numbered, maps made and a census of the villages was under-taken. By early July the socio-economic survey and the baseline pregnancy history and KAP surveys were started. It is planned that the Functional Analysis studies shall be covering the F.P. cell by fall 1972. The consequent evaluation can then be used to modify and improve the program.

'jrr'
13.9.72

APPENDIX 'A'

SYSTEMATIC FAMILY PLANNING

(Standard interview procedures for family planning home visiting in the field.)

SUMMARY

Investigation of the background of Family Planning acceptors in a study population of 10,424 at the Narangwal Rural Health Research Centre, has led to identification of the occasions and the factors comprising the family planning equation of the family as a whole, which determine the need for F.P. advice.

By matching the content of the F.P. interview to each occasion demanding F.P. advice an attempt is made to standardise counselling procedures for F.P. by the auxiliary nurse midwife.

Working guidelines to the nurse auxiliary are incorporated in her field manual of instructions. These are simplified in the form of a F.P. reference 'clock' - a teaching device which presents the patients family planning "profile", her attitudes, and position in the routine care cycle of women services, in a readily intelligible form to paramedical workers in the field.

This systematic approach is being tested at Narangwal with appropriate supervisory checks built in to ensure reproducibility in other situations, and an ongoing evaluation to observe its effect.

INTRODUCTION

A new approach to integrating Family Planning through maternal and child care, is being field tested at the Johns Hopkins Rural Health Research Centre, Narangwal. The method defines standard procedures for family planning home visiting. The system is integrated through a framework of MCH care given by nurse auxiliaries in 11 experimental village subcentres: three of these provide child care alone, four women services, and four deliver combined M.C.H. care.

Womens services are delivered through a care cycle in which all eligible women are under constant review from marriage to monopause through 2 monthly home visiting in the non-pregnant menstruating condition; 4 antenatal visits following diagnosis of pregnancy; 4 visits in the post-partum period; a final postnatal contact at the end of the puerperium and 2 monthly home visiting during lactation until she again returns to the non-pregnant menstruating state.

In contrast, child care is a linear activity through which all children upto school age are supervised (weighing, observation of milestones, measuring, immunization, dietary advice, well-baby check with medical care on demand from 3 to 14 years). Weight faltering singles out the malnourished child with its proneness to superadded infection and the increased risk family from which it comes; these children are enrolled into a community supported supplementary feeding programme until restored to their normal place on the weight curve.

Curative care is given on demand to women and children at clinics held at the subcentres by the nurse auxiliary. The physician deals with referred cases only.

This service is amenable to supervision and is believed to be reproducible within the fiscal and manpower constraints of the Indian Health Services.

THE ANATOMY OF FAMILY PLANNING ADVICE

Alternative approaches to family planning include:-

(a) An intuitive approach, in which the F.P. worker, armed with a few slogans advises those who seek it or who are known to belong to high age and parity groups.
(b) The campaign, for which techniques for the preparatory approach to the community and subsequent follow up are gradually being revealed.
(c) A systematic personalised approach, described below, in which a F.P. service at health centre and subcentre level is delivered through M.C.H. care. This approach is based upon the identification of those situations in which the health or survival of the child, the mother, or the family as a whole, are seen to be safe-guarded by spacing or family limitation, and the use of advice, motivation or persuasion appropriate to each of these occasions.

These alternatives are not mutually exclusive: the mass approach which targets higher parity couples, if combined with good follow up, may effectively lead to a longer term campaign which relies on a more personalised approach to gain acceptance from lower profile subjects.

Family Planning: the intuitive approach: For two years Family Planning services have been provided to Narangwal villages by an intuitive low-key approach based on contact by the nurse auxiliary and male F.P. worker with the patient or her husband referral to the physician and follow up of acceptors. Pressure tactics, economic and other incentives were avoided, no targets were imposed. Recognition of natural opportunities for F.P. was left to the worker's judgment.

Intuitive judgment proved an effective instrument. F.P. contacts comprised 13% of all womens service contacts in the home or clinic; it achieved 42% acceptance among married women aged 14-49 (eligible women) and a 28% current user rate.

Family Planning analysis of the systematic approach: (1) Identifying the situations "entry points" in which "integrated Family Planning" integrates with Maternal & Child Health Services. Recognition of appropriate subjects and occasions for F.P. may not come easily to a young unmarried nursing auxiliary. While not minimizing the value of such an intuitive approach a search was made to provide it with a more solid base, by investigating the background to each new acceptor and identifying the circumstances and occasion which led to F.P. advice being given.

Thirty situations were distinguished in which family child & maternal well being appeared to be promoted by advice for child spacing or limitation. These situations, offering natural opportunities for F.P. advice, occurred when

pregnancy was diagnosed, at subsequent ante-natal examinations, in the puerperium, lactation, at the time of re-establishment of the menses, during weaning, during 2 monthly routine home contacts, at the time of maternal and child illness at well-baby clinics, while giving immunization or supplementary feeding, child weighing, in connection with abortion or post-abortion examination, when pregnancy supervened with another child on the breast, when a child was displaced prematurely from the breast by birth of a sibling, in rearing premature, delicate, underweight or twin infants, in the presence of social or economic threat to the family etc., etc.

These situations may be said tobe "entry points" at which family planning integrates with maternal and child care.

This cumbersome inventory is simplified by classification into obligatory, contingent and judgmental occasions.

(a) Obligatory occasions. These are 8 occasions when Family Planning advice is always indicated as an obligatory and inseparable part of medical consultation: as follows:

(i) Confirmation of pregnancy (when the patient usually confides whether the pregnancy is wanted or unwanted).
(ii) Post abortion examination.
(iii) 36th week antenatal examination (when a reminder about spacing is appropriate).
(iv) 14th day post-partum examination (the topic of F.P. should be avoided until after the post-natal ceremonies are celebrated).
(v) 6th week postnatal examination.
(vi) At the 7th month (when re-establishment of menses forces a conscious decision about the future).
(vii) Weaning period.
(viii) At routine survey of all eligible women in the community, the F.P. topic needs to be introduced from time to time.

These occasions interdigitate with the repeated care cycle upon which the delivery of women services is based. If routine use is made of those opportunities a continuous family planning reminder and review is maintained on all eligible women in the community who are not acceptors.

(b) Contingent occasions. The presence of certain constellations of events may indicate need for F.P. advice e.g. unwanted pregnancy, septic or induced abortion, failed contraception, sibling displaced prematurely from the breast, rearing the premature or delicate infant, certain chronic maternal diseases etc.

(c) Judgmental occasions. Those situations in which the discretion of the nurse auxiliary or F.P. worker must decide, depending on the patients attitude to F.P., etc., when and how often advice should be given. This particularly refers to the routine 2 monthly home visit health review made on all eligible women in the community.

Analysis of the systematic approach (2) Determinants of F.P. advice. Whereas the occasion for advice is set in motion by the recognition of "entry points" certain other factors determine the type of advice to be given:

(a) the patients F.P. profile,
(b) her basic attitude to Family Planning,
(c) the family planning equation of the mother, child & family,
(d) certain absolute medical indications.

(a) The Family Planning Profile: Parity, number of sons, spacing and age of youngest child basically determine the need for Family Planning. This relates directly with the first two, and inversely with the second two factors.

Table I

Basic variables	Low profile	Medium profile	High profile
1. Parity (living)	0 1 .	2 3	4 5 6 7+
2. No. of sons (living)	0 1 .	. 2	3 4 5 6+
3. Spacing (years)	6+ 5 4	3	2 1½ 1 etc.
4. Age of youngest (years)	4+ 3 2	1½	1 6 3 etc.
			12 12

There are 4 additional contingent variables, the presence of any of which places the couple in a high profile category.

Table II

	Low	Medium	High profile
Child of marriageable age	-	-	Yes
Maternal chronic illness	-	-	Yes
Failed family planning or H/of septic or induced abortion	-	-	Yes
Malnutrition in the family	-	-	Yes

The profile is dynamic, modifies after each succeeding pregnancy, increases with the number of circles drawn around figures toward the right hand columns, and requires revision following each delivery.

(b) The patients basic attitude to family planning: Just as 'profile' may influence the content and frequency of subsequent Family Planning contacts, the patients initial attitude towards Family Planning i.e.

whether approver or disapprover,
former user of F.P. or "never user",
seeker for F.P. advice or non-seeker,

establishes in advance whether or not the patient is basically one's friend or enemy. This knowledge may further modify the approach to the Family Planning interview.

(c) The family planning equation of the family: As mentioned above account must also be taken of the well being of the child and family as a whole. Where poverty alcoholism or drug dependance of the husband affect the family's nutrition, where economic balance is in danger of being disturbed by further pregnancy, where the rearing of an underweight or delicate child would be threatened by supervening pregnancy, premature displacement from the breast, or failure of lactation etc., family planning advice is indicated.

(d) Absolute medical indications: Regardless of profile or position in the care cycle, further conception may be contraindicated by asthma, epilepsy, diabetes, heart disease, tuberculosis, syphilis, lunacy etc. Since the diagnosis of these conditions is established by the physician it is he who initiates F.P. advice in these cases and not the nurse auxiliary.

Matching the interview to the occasion.

Analysis thus far demonstrates how the F.P. approach is initiated by recognition of 'entry points' and modified by certain other determinants. Without attempting to structure the interview itself broad distinctions are recognisable between.

(i) Family planning "education": i.e. simple low key presentation of Family planning options available to patient,
(ii) Family planning "motivation": where the consequences to the patient and to her family of more children are explained,
(iii) Family planning "persuasion" which becomes permissible when further conception constitutes a serious hazard to a patient's health or to the well being of her family.

This simple classification can be used as a general guide to the nurse auxiliary or F.P. worker when approaching an interview. Advice appropriate to a high profile patient with grade IV heart disease would provoke hostility if proferred to a low profile case desiring the birth of a son. Appropriate advice to a low profile patient before delivery might be inadequate a month later after the premature delivery of a weakly underweight infant or the birth of twins. Advice given during lactation at the time of restoration of menstruation when spacing becomes an urgent question to be decided during that month, or advice relating to the weaning period and the possible effect of supervening pregnancy on lactation and subsequent nutrition of her baby, are deeply influenced by the occasion on which F.P. advice is being given as well as the patients degree of eligibility. The use of advice based on arguments of national interest or world population is futile, whereas advice to village patients drawing parallels with stock and crop-raising situations can be helpful. Above all, advice should be personalised.

STANDARD FAMILY PLANNING HOME VISIT INTERVIEW PROCEDURES.

By application of the above analysis an interview guide for use at appropriate F.P. "entry points" in the care cycle can be standardised as follows:

1st entry point: confirmation of pregnancy visit:

↓

F.P. education and motivation but no persuasion should be used at this visit (combine with well baby check on other siblings in the family).

↓

Give F.P. education on the options of the abortion act to the following groups of patient

Motivation to adopt F.P. following delivery to:

To a) All who admit to unwanted pregnancy
b) With a past history of induced or septic abortion
c) With a history of failed contraception
d) To all high profile patients
e) To all still breast feeding premature delicate or twin babies.
f) To all with malnourished child in the family.
g) Where conception is within 6/12 of last delivery.

a) Medium & high profile patients.
b) "High risk" category antenatal patients
c) All with chronic diseases for whom physician has advised F.P.
d) To those who declined the option of therapeutic abortion.

2nd entry point: post abortion examination:

Give routine F.P. advice to all patients

F.P. education (for spacing)

a) To low profile cases (with exception of infertility cases or low profile patients with no son, or low profile patients rearing delicate or underweight child, who require F.P. 'persuasion')

F.P. motivation (for spacing or limitation)

a) To all medium profile patients.

F.P. persuasion (for limitation or prolonged spacing)

a) To all high profile cases (limitation)
b) To all who have aborted after failed F.P. (spacing or limitation)
c) After septic or induced abortion (limitation)
d) To all rearing premature, delicate underweight or twin child (spacing).

3rd entry point: 36th week antenatal visit:

F.P. reminder to all including returning parturient daughters of the village (combined with well baby health check on other siblings)

Education (for 18 months spacing)

a) Should be started with all low profile patients (unless suffering from infertility, or already raising a premature or delicate infant.)

Motivation (spacing)

a) To medium profile patients, not raising premature or delicate infant.

Persuasion (spacing or limitation)

a) High profile patients
b) Twin pregnancies
c) Severe pregnancy complication
d) Chronic disease (if advised by physician).
e) All breast feeding, especially if delicate children.
f) Those who earlier declined the option of termination.

4th entry point: Post partum examination: 14th day.

↓

F.P. advice to all patients (combine with revising the patients F.P. profile: well baby check on infant and other siblings: B.C.G. and small-pox vaccination of new born: breast examination and discussion of effect on lactation and mothers health of further pregnancy).

Education (for 18 months spacing)

a) To all low profile cases except following S.B., N.N.D. or birth of delicate infant.

Motivation (for spacing or limitation)

a) Medium profile patients
b) Following difficult labour or P.P.H.

Persuasion (spacing or limitation)

a) All who were 'persuaded' at 36th week
b) Following birth of premature of weakly baby (spacing)
c) When last child has been prematurely displaced from breast (prolonged spacing)
d) After twin delivery (spacing)
e) All high profile patients (limitation unless over the age of 45 in which case prolonged spacing preferable)

5th entry point: 6th week post partum examination (lactation I)

↓

F.P. advice or reminder to all patients including returning daughters-in-law of the village following confinement in their maternal home (combined with health check on infant and siblings).

Motivation (for spacing)

a) All low profile cases excluding those delivered of S.B. or N.N.D.
b) Medium profile cases
c) Those who had difficult labour or pregnancy
d) Urge urgent decision on all whose menses may have restarted.

Persuasion

a) All high profile cases (limitation)
b) All with premature, low birth weight, delicate or twin babies.
c) Where last child displaced prematurely from breast, or siblings not thriving.
d) All with chronic diseases.

6th entry point: 7th month post partum (lactation II)

↓

F.P. reminder to all including returning daughters of village (conscious decision forced on those whose menses have re-started) combine with health check on infant and siblings, D.P.T. & Polio immunization of infant, dietary advice.

Motivation (for spacing)

a) Low or medium profile daughters returning to village.
b) With recent abnormal pregnancy & labour (unless ending in S.B. or N.N.D.)

Persuasion

a) High profile (limitation)
b) Whose baby not gaining weight satisfactorily
c) With twins, or delicate infant
d) Where last child was displaced early from breast or where sibling is not thriving.
e) All with chronic disease.

7th entry point: 9th month post partum. (Lactation III)

↓

Discussion of weaning raises question of effect of supervening pregnancy on duration of lactation. F.P. reminder, combined with health check on infant and other siblings, dietary advice.

Motivation

(as in the last entry point)

Persuasion

8th entry point: Routine 2 monthly health review of all eligible women in the community

↓

Low profile patients

↓

F.P. education reminder at 6 monthly intervals i.e. every third visit (advise spacing, except for breast feeders, or mothers of delicate or under-weight children - who require 'persuasion')

Medium profile patients

↓

F.P. motivation at 4 monthly intervals (spacing or limitation)

High profile patients

↓

F.P. Persuasion at 2 monthly intervals

Also to breast feeders and mothers of premature or underweight children.

APPENDIX B - SELECTED STUDIES

PART I: DURATION OF POST-PARTUM AMENORRHEA FOLLOWING LIVE BIRTH, STILL BIRTH AND ABORTION:

The period of post-partum amenorrhea is defined as the duration between termination of a pregnancy and resumption of menstruation. At the time of this analysis there were 707 women for whom completed durations of amenorrhea were available. Of these 707 durations, 28 were those following still birth, 31 following abortion and the remaining 648 were durations of amenorrhea following live birth. Distribution of these durations are presented in Table B-1. The mean length of (post-partum) amenorrhea following a live birth is 183.9 days, while it is 103.4 days in the case of still birth and 84.9 days following abortion. The median values of amenorrhea duration work out to 136.1, 75.0 and 64.5 days following live birth, still birth and abortion respectively.

Among the 648 women who had amenorrhea following live birth there were 467 belonging to the Jat caste and 338 to scheduled castes. The distribution of women in each caste by duration of amenorrhea (following live birth) is given in Table B-2. The mean duration of post-partum amenorrhea following live birth is 171.76 for Jat women and 220.27 for scheduled caste women. The median values are 128.5 and 150.0 for Jats and scheduled castes respectively.

The amenorrhea distributions following live birth for women of all castes, Jats and Scheduled castes are plotted in Figure B-1. The general features of these curves are (a) they are bi-modal curves with one mode between 30 and 60 days and a second mode between 90 and 120 days, (b) they have a long tail (skewed) to the right extending upto over 600 days.

PART II: MATERNAL HEIGHTS:

Maternal heights were available for nearly 3000 women. These women belonged to three cohorts - comprehensive services, women's services and nutrition group. Women beyond 28 years of age among these are 2702. Average height of these women in each caste group and the numbers of women on which the averages were based are presented in Table B-3. Jat women who belong to a higher socio-economic class are taller on an average than Ramdasia women by a little over 2 cms. The mean height for Jat women is 156.5 and that of Ramdasias is 154.3. Distribution of women aged 20 years and over by height is plotted in Figure B-2 for all castes combined. Frequency distributions by caste are all more or less alike in shape and hence not included in the graph.

Table B-1

Distribution of women by duration of post-partum amenorrhea following live birth, still birth and abortion.

*****

Amenorrhea (days)	Type of termination		
	Live birth	Still birth	Abortion
Less than 30	12	2	4
30-	31	4	8
45-	60	3	3
60-	38	5	3
75-	44	4	5
90-	103	5	1
120-	67	2	2
150-	58	0	1
180-	29	0	
210-	40	0	2
240-	27	0	1
270-	27	1	0
300-	18	0	0
330-	20	0	0
360-	15	1	0
390-	20	1	0
420+	39	0	0
Total	648	28	1
Mean	183.9	103.4	84.9
Median	136.1	75.0	62.5

Table B-2

Duration of Amenorrhea following live birth, Jat caste & scheduled castes.

Amenorrhea (days)	Caste	
	Jat	Sch. Castes
Less than 30	7	4
30-44	13	14
45-59	23	27
60-74	18	17
75-89	16	24
90-119	48	51
120-149	30	32
150-179	20	33
180-209	18	11
210-239	16	22
240-269	8	16
270-299	10	17
300-329	10	8
330-359	4	16
360-389	6	9
390-419	8	11
420+	12	26
Total	267	338
Mean	171.76	200.27
Median	128.50	150.0

'rkj'

Figure 1-1.

Duration of Post Partum Amenorrhea Following Live Birth, All Castes And Jat And Scheduled Castes

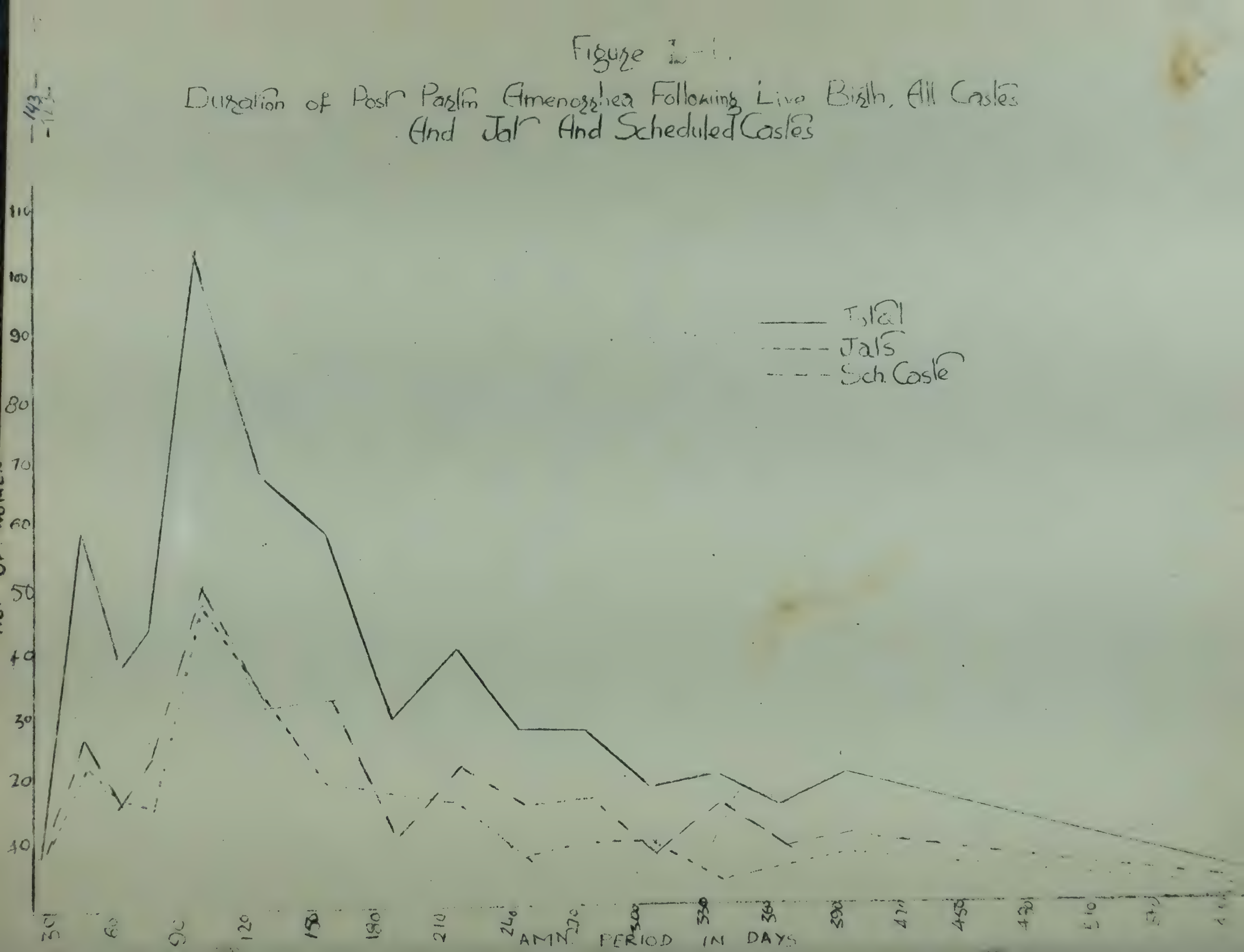


Table B-3.

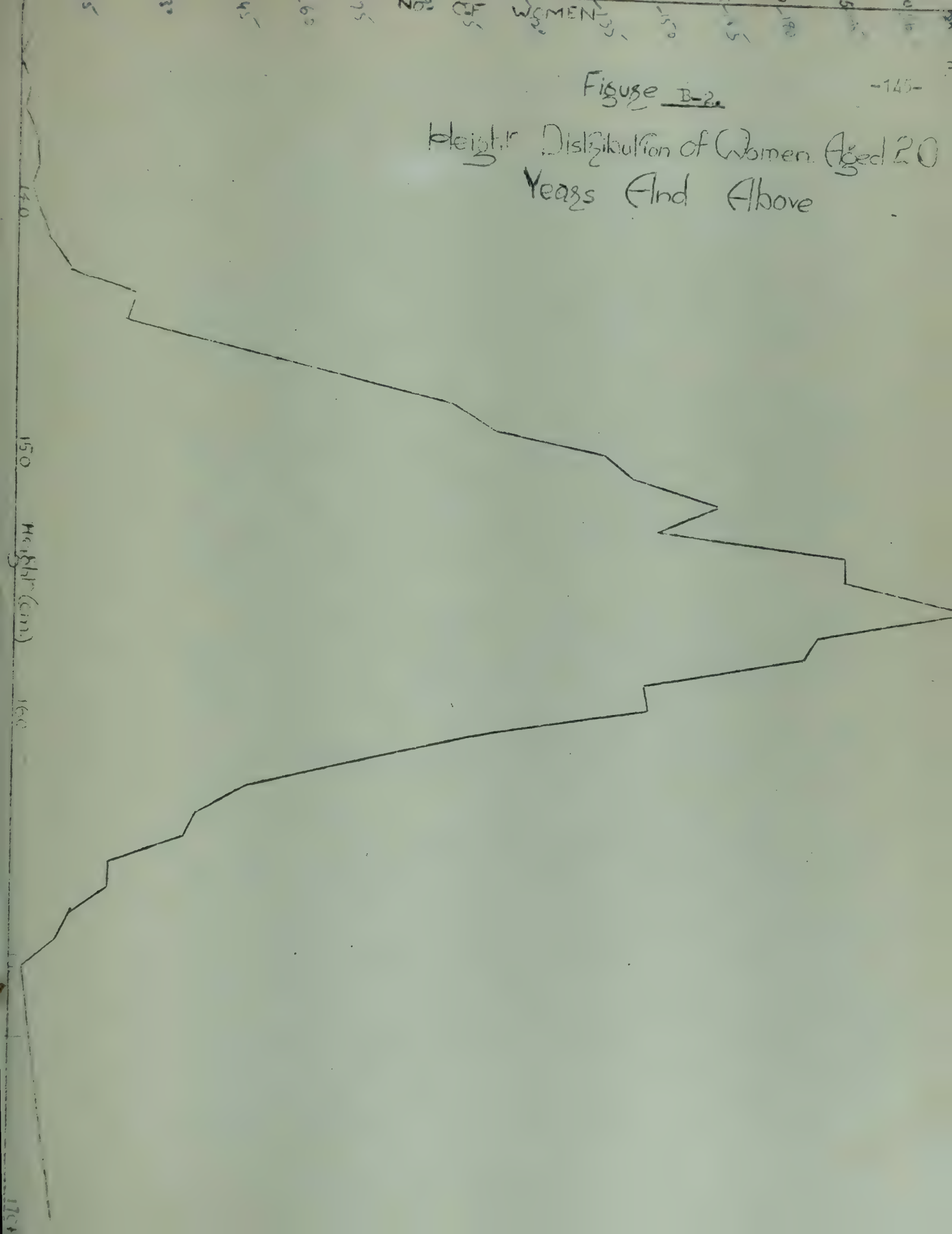
Average Height of Women aged 20 years and over, by caste.

Caste	No. of women	Mean Ht(Cm.)	Median Ht(Cm.)
Jat	1347	156.5	156.6
Ramdasia	884	154.3	154.4
Other castes	491	155.1	155.4
Total:-	2722	155.5	155.7

RPS/4.10.72.

Figure B-2.

Height Distribution of Women Aged 20 Years And Above



PART III:- DURATION OF GESTATION, BIRTHWEIGHTS AND PREMATURITY.

(1) Duration of Gestation.

Birth weights by period of gestation has been a subject of enquiry for 2 years (See annual report 1969/70: Section III: task 5). 632 live birth weights were recorded; ("readings" taken on a spring balance within one week of delivery were regarded as synonymous with 'birth weight'). The record was made in the patients obstetric folder or as the first entry in the childs anthropometric survey. Birthweights were obtained in this manner from 49% of live births (632:1293): gestational period was recorded in 890 (68%). In 534 cases (41% of livebirths during 1970 and 71) there is a record of gestation as well as birth weight.(Table B-4).

The prospective record of duration of gestation is available through the fertility survey (2 monthly questioning of all eligible women on the date of their last menstruation). Although recorded within 2 months of this event the patients recall is not entirely reliable, there may be deliberate concealment, there is a small number of women who habitually menstruate early in pregnancy, and some (23/1000) in the survey who conceive again during lactational amenorrhoea or after only one menstrual period has been reestablished (11.4%).

If the association between gestation of less than 37 weeks and birth weight over 2,500 gm is an index of error in the fertility record - this inconsistency was present in 11% of fertility records. (Discrepancy in the reverse manner, i.e. low birthweight and term pregnancy may result from the dysmaturity syndrome).

22.7% pregnancies terminated in livebirth before completion of the 37th week. No caste difference could be shown (Table B-5).

(2) Birthweight.

26.2% of birth weights were below the international standard of 2,500 gm. The sample size below 2000 grams (33 birth weights) is very small and comprised 5.3% of live births.

Weighing is widely believed in this culture to be harmful to the new born and this prejudice operates especially against those babies that are premature or weak.

Distribution of birthweights by caste (see table B-6 and B-7 below) shows significantly larger numbers of babies weighing between 2000 to 2500 grams born to Ramdasia mothers. This pattern is reversed in the higher birth weights where heavier babies are born to Jats and other castes. The hotch potch of 'other' castes includes a number of economically prosperous members of the community.

(3) Birthweight by Gestation.

Owing to prejudices against weighing delicate children the

Table B-4

Total Births 1970/1971 and their status as to gestational period and birth Weight recording.

Total No. of births* 1970/1971**	Gest. period recorded		Birth weight recorded		Birth weight and Gest. period recorded	
	No.	%	No.	%	No.	%
1293	890	69	632	49	534	41

* Live and still births.
**Local and Incoming only.

Table B-5

Distribution of Gestational Period by Caste.

Gest. period / Caste.	Less than 37 weeks		37 weeks or more		All	
	No.	%	No.	%	No.	%
Jat	81	23.9	258	76.1	339	100
Ramdasia	89	21.9	317	78.1	406	100
Others	32	24.1	113	77.9	683	100
All	202	22.7	688	77.3	890	100

Note: Caste Ramdasia includes Sansis, Majhbis; Jats are Jats only; Others include Bania, Bhati, Brahmin, Darzi, Gujars, Jhurs, Khatri, Nai, Maran, Mahant, Mistry, Muslims, Pandit, Rajput, Mehra, Chumar.

Syal/13.9.72.

Table B-6

Distribution of birth weights by caste

Birth weight / Caste	1500		1500-		2000-		2500-		3000-		3500-		4000+		All wts.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Jat	3	1.3	8	3.5	40	17.3	102	44.3	60	26.0	15	6.5	2	0.9	230	100
Ramdasia	5	1.7	13	4.5	75	25.9	119	41.0	67	23.1	11	3.8	-	0	290	100
Others	-	0	4	3.6	17	15.2	49	43.8	36	32.1	6	5.4	-	0	112	100
All castes	8	1.3	25	4.0	132	20.9	270	42.7	163	25.8	32	5.1	2	0.3	632	100

Table B-7

Average Birth Weights by Caste.

Jat		Ramdasia		Others		All	
No.	Av.Wt.	No.	Av.Wt.	No.	Av. Wt.	No.	Av. Wt.
	Kgs.		Kgs.		Kgs.		Kgs.
230	2.82	290	2.70	112	2.85	632	2.77

birthweight sample below 37 weeks still remains small.

Table B-8 and Figure B-3 show distribution of birthweights by gestational age in 473 cases (59 cases of high birthweight/short gestation are excluded).

(4) Prematurity.

a) Prematurity by weight.

Controversy has been going on for years in this country as to which upper weight level should be adopted for the Indian premature infant.

Birth weights were only recorded in 49% of cases however and up to now only 57 live birthweights have been recorded before the 37th completed week of gestation. Although reluctance to allow weighing of prematures, and the village practice of rapid disposal of the bodies of babies stillborn or dying early in the neonatal period, vitiates assessment of the incidence of prematurity by weight owing to low coverage, a profile on birthweight by gestation is slowly being built up as more premature birthweights are added to this survey each year.

The table of birthweights clearly shows that from completion of the 37th week onwards, the mean birthweight remains above 2.75 gms.

During the 6 month period of service record analysis from July to December 1971 Birthweights were recorded in (168/185) 90% of deliveries.

Of these weights 78% (132) individual values were more than 2500 gms.
22% (29) " " " below " "
7% (10) " " " " 2000 gms.

This distribution may be compared with the table above which shows mean values of 88% (416) above 2500 gms.
12% (57) below 2500 gms.

b) Prematurity by gestation.

If the 11% correction factor is applied to the incidence of 22.7% of 890 pregnancies terminating in livebirth before the end of the 37th week, prematurity by gestation period would seem to occur in the order of 11.7% of pregnancies.

Gestation periods were estimated in only 68% of pregnancies however and therefore incomplete coverage vitiates assessment of the incidence of prematurity by this method.

c) The stigmata of prematurity.

60 newborn infants that were either below 2.50 Kg or whose gestation age was less than 37 weeks were examined within the first 5 days of life by one of the project physicians.

TABLE 5-8.

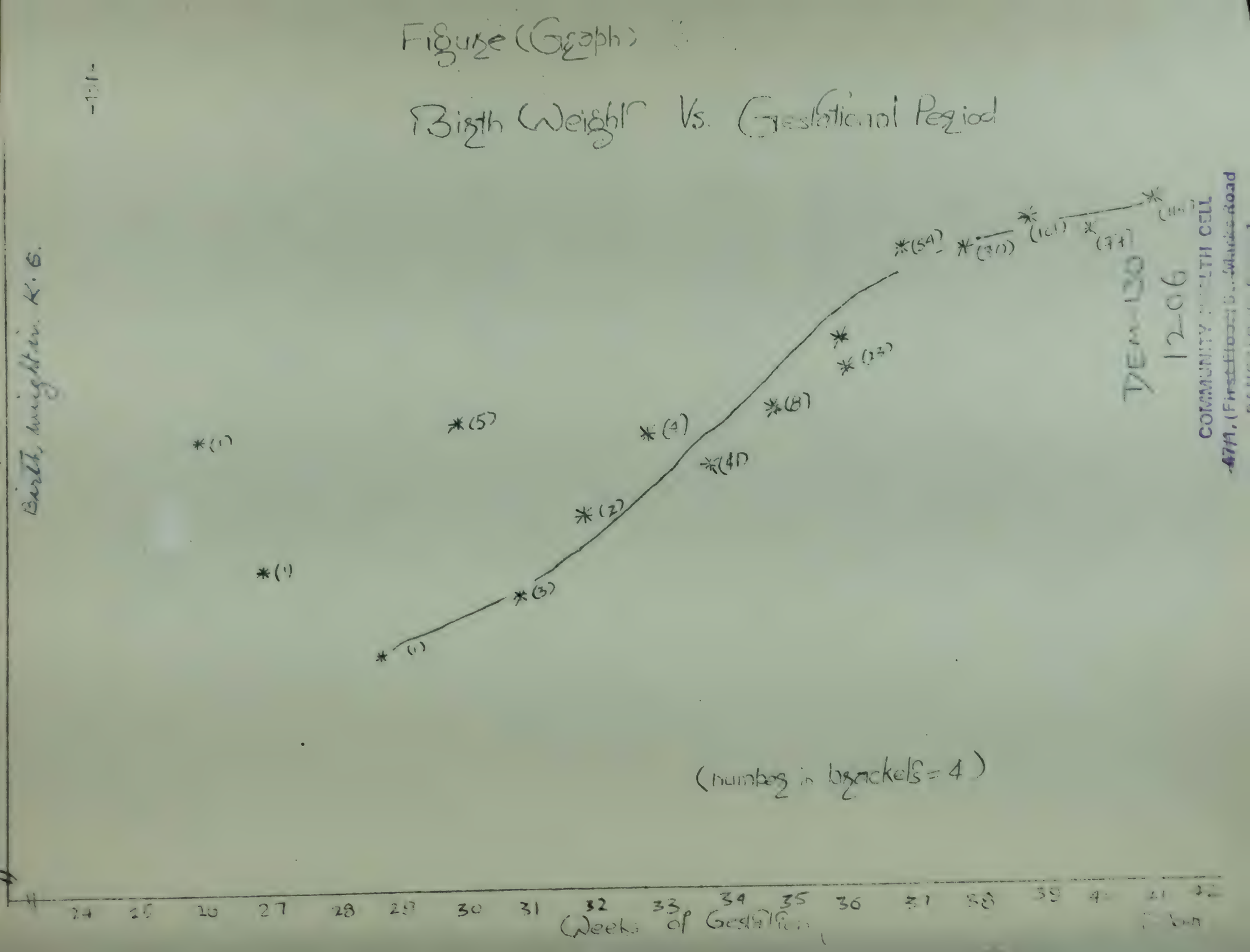
Birth weight Vs. Gestational Period: 473 cases.
(59 high birth weight short gestation period babies exclude: B.Ws of twins are included)

Completed weeks of gestation.	No.	Mean weight.
28	-	-
29	1	1.20
30	5	2.08
31	3	1.40
32	2	1.70
33	4	2.01
34	11	1.90
35	8	2.15
36	23	2.23
37	54	2.75
38	70	2.75
39	101	2.88
40	77	2.83
41+	114	2.86

PPS/7.10.72.

Figure (Graph)

Birth Weight Vs. Gestational Period



(numbers in brackets = 4)

DEMO
12-06
COMMUNITY HEALTH CELL
4771, (First floor), ... Road

The examination assessed:

(a) Neurological reflexes
  i) Moro
  ii) Walking
  iii) Rooting
  iv) Grasp

(b) Physiological signs
  i) Ventral flexion of wrist
  ii) Ventral heel to ear flexion
  iii) Elbow over abdomen manoeuvre

(c) Physical signs
  i) Size of breast nodule
  ii) Presence and distribution of sole creases
  iii) Extent of ear cartilage
  iv) Appearance of genitals

Performance on each of these items was scored 0, 1 or 2 and the total score out of a possible score of 22 determined. No consistant correlation between total score, and gestational period or birth weight was obtained.

PART IV: STUDY OF THE DAI: HER BELIEFS AND HER PRACTICES.

Summary.

1. The first full years report is given on a study of the knowledge and practice of obstetrics of indigenous Dais who are working in the study villages, and of their attitudes and beliefs about childbirth and related health issues.

2. 17 Dais have been repeatedly interviewed by a staff member with double qualification as Public Health Nurse and Social Scientist, accompanied by a lady Physician. Interviews were recorded on tape and translated verbatim.

3. The Dais were observed while conducting deliveries in the patients home. An account of these interviews and observations is reported.

DAI STUDY

I) Objectives and Methodology

The inclusion of the dai in the health team is essential for delivery of efficient and effective MCH services in rural India. The culturally accepted, resident elderly woman, who is usually the first and often the only person to see a woman through her pregnancy holds an interesting coterie of beliefs and attitudes that affect the course of the lives of her clients. 'Dai Study' was undertaken with a view to-

1) Examining the knowledge and practice of obstetrics and studying attitudes and beliefs of the dai regarding child birth and related health issues.

2) Identifying beliefs that are beneficial, harmful or have a neutral effect on the course of pregnancy and labour.

3) Finding areas where a training program may be built on to existing belief systems.

A list of dais in the study area was prepared (See 1971 report pp 42,43). Of these 7 dais in Pakhowal (CC+WS+FP) and Malould (WS,FP) were selected for the study.

It was decided to use -

i) In-depth interviews of the dais.
ii) Observation of the dai at work, in order to achieve the objective.

In depth interview - an interview schedule was pretested in control villages Dangon and Leel, and administered to dais in Dhaipee. It became apparent that the constraints of a performa tended to elicit stereotyped responses. It was therefore decided to abandon the questionnaire.

Instead interviews were conducted with the help of a tape recorder, a verbatim account of the interview was translated into English, retaining local terms and idioms. It is intended to use these in preparing a glossary of medical terms at a later date.

The interview was generally conducted in the RHRC clinic. The Dais were asked to come to the clinic and would stay and talk in privacy for half an hour to 45 minutes. If the dai became restive, another appointment was made for a later date. There were frequent broken appointments and repeated visits were necessary in order to conduct the interviews. Not all the subjects are covered for all the dais. We are aware of this and shall be going back to complete the lacunae in the information.

Concurrently with the interviews the dai was observed at work. The dai, the FHW and the family of the pregnant woman were contacted to call for the observer at the time the dai was sent for. The observer being a nurse was repeatedly asked by the family of the parturient to intervene in the delivery. Some dais did not send for the observer while others were very co-operative. In view of the short time at our disposal and the unpredictable time that deliveries take place observations made by FHWs have been incorporated into the study. The FHWs account was supplemented by asking her questions for details shortly after the event.

The collected data was in the form of a conversation narrative of questions and answers.

Analysis of the data under various headings was made and is now presented.

II. Recorded interviews

The Dai

The dais are elderly (35-85 yrs; mostly in the 50-60 yrs. age group) Ramdasia (all 17) women, all had married, 8 were widowed and 2 of them remarried, six had other relatives who were or had been dais, they themselves had had from 3 children to 12 children——most had 3 living children. Ten of the dais had had training in special courses run for dais at PHCs 10-15 yrs. ago. One had not completed the training program. Two had apprenticed with another dai and one with her mother. One dai had been an elected member of the Panchayat for several years and was up for reelection and was facing a competitor in another dai.

1) Diagnosis of Pregnancy

All 17 dais were asked how they diagnosed pregnancies. All of them gave similar replies.

A member of the household of the pregnant woman usually fetches the dai. The husband, or a woman in the house and occasionally but rarely the woman herself may come to call her. The dai may first see a pregnant woman at 2nd month or as late as 7-8 months.

Two of the dais said that they can diagnose early pregnancy by looking at a woman - her complexion is paler, her back wider and her breasts fuller. All the dais confirm pregnancy by palpating the abdomen. They do not make a vaginal examination for confirmation of pregnancy.

2) Duration of Pregnancy and Expected Date of Delivery

All the dais judge the duration of pregnancy by abdominal palpation.

Sixteen dais were asked about their method of estimation of expected date of delivery. Eleven (7 trained and four untrained) of them said they follow the lunar calendar (Indian system). They count nine months forward from the last menstrual period and add fifteen days; and say that delivery would take place between 4-15 days of the date calculated: a system which would be comparable to the usual estimation, if calculated from the last day of a 7 day menstrual loss - calculated from the 1st day of the L.M.P. it would give a 41 week duration of pregnancy.

Four dais (three trained and one untrained) go by the date of quickening. The untrained dai believed that male babies are delivered in the 9 months and female babies in the 10th month.

Our impression was that there was no conscious effort to estimate an expected date of delivery as in modern obstetric practice.

Prenatal Care:

Dietary advice - all 17 dais were asked what diet they recommended their clients. Of these the trained dais tended to advise women to take green leafy vegetables, milk and fruit. Both trained and untrained dais advise women to take 'ghee'. The explanation given was that if ghee is ingested during pregnancy the vagina is better prepared for child birth as well as the woman having more energy for labour.

'Morning sickness' - a variety of items is prescribed for morning sickness. Except for one untrained dai who said that women should avoid eating if they feel sick all the others gave the remedies. They ranged from Chunnas (baked gram), 'ajwayan' in hot water, sugar and water, dry biscuits to a pinch of mud (mitti da bhora).

Hyperemesis gravidarum - three trained and two untrained dais refer the patient to a doctor. The rest seemed unaware of the entity.

Work during prenatal period

All dais thought women should do their average daily work through out pregnancy. The only qualification was that the woman should not lift heavy weights, climb ladders or step on uneven ground. Two trained dais recommended an evening walk in addition to routine chores.

Oedema of the feet during pregnancy -

Only eight women were asked this. Two (one trained the other untrained) said they had never seen oedema of the feet in their practice. Two trained dais believed oedema was due to pregnancy and disappeared after delivery. One untrained dai believed women who sat about and did not do any work tended to develop oedema of their feet.

One trained dai said that a woman with oedematous feet also had something wrong with her urine. She recommends the woman have her urine

examined (FHWs in the study village may have inspired this).

One untrained dai said she has seen swelling of the vulva associated with oedema feet. She treats this with ahim per vaginam.

One trained dai believed oedema of the feet was due to "poison" in the body that leaves upon delivery.

None of them associated oedematous feet with fits. One dai believed fits were of 2 types (i) due to weakness (2) due to "magic" - treatment possible only by a 'Syana'.

Massage

All dais seem to receive requests to give massage in all three trimesters of the pregnancy. The massage may be done because (1) the woman is tired or (2) in the belief that the foetus is out of place 'and fallen into the pelvis'. The dai then puts one foot against the womans perineum and 'pushes the uterus up'. The foetus is said to get displaced if a woman stumbles or falls or if she has sexual intercourse. Any jerky movement is said to precipitate this "falling down" of the foetus. A lot of the dais prenatal practice consists in giving massage to various parts of the - of the abdomen, limbs and the back.

Sexual Intercourse

All 17 dais recommend that sexual intercourse be avoided from 3rd to 5th months of pregnancy onwards. The reasons given are (1) foetal displacement can occur (2) stillbirth can occur (3) can lead to abortion (4) if a female foetus it would amount to incest.

One dai believed that the couple should avoid intercourse from the very beginning of pregnancy. Most dais said that advice was never followed and therefore seldom given by them.

Abortion

All seventeen were asked questions relating to abortion. 13 dais (9 trained) said that they do a vaginal examination if a pregnant woman has bleeding per vaginam. They could all recognize inevitable abortion. Some of the causes suggested for abortion were:

1) Jerky movements as in sexual intercourse.
2) Displacement of foetus.
3) Climbing or lifting heavy weights. This last was refuted by one dai who said that Nandasia women did not abortal/though they carried heavy weights.

(These dais said they referred the woman to the FHW; except one untrained dai who said she applies 'gachi' dissolved in water to the woman's abdomen.)

Some other methods for managing abortion were as follows:-

(i) 'sard dainí', 'Samundri jhag', 'chitti ilayachi', 'kachi lassi', are all 'cold' things that inhibit or prevent the abortive process.

(ii) abortion caused by magic: 'Kasar' can only be treated by a 'Syana'.

(4) Dry 'Dhania' roasted and mixed with sugar can stop bleeding.

(5) Woman should stop working if they are bleeding PV during pregnancy.

One trained dai said that women with a 'weak uterus' can have habitual abortion.

All the dais claimed that they had never induced abortion. One dai said she advised women aiming for abortion to have the baby and then undergo a tubectomy.

Prematurity

Only 14 dais were asked questions on Prematurity. One untrained dai said she had never seen a premature baby.

(a) Causes of prematurity:

i) 'Shadow' falls on womans abdmen
ii) 'Kasar' (magic) of dead member in the family
iii) Worry and anxiety
iv) Stumbling on an uneven surface.

Diagnosis of prematurity:

Only 4, all trained dais, gave a description of the premature baby. They said that the baby is small weak, has a faint cry, cannot suck, has sparse or no hair.

Management: Two untrained dais said such babies do not survive because they are weak and cannot suck. Most of the dais (12; 8 trained) said that such babies should be (i) wrapped in cotton wool, (ii) kept warm, (iii) not bathed until they complete the duration of gestation (iv) given diluted goat's milk with a wick or expressed milk with a spoon. One dai (trained) said that the baby should not be disturbed, kept on a seperate cot and handled very carefully and only by a neat and clean person. Two trained dais said that cottonwool should be kept at the babies anus to clean it with minimum disturbance to the baby.

Breech

All the dais were asked questions about this. They said they could all diagnose breech by abdominal palpation two mentioned feeling the babies genitalia at labour as another means of diagnosis.

Management:

All the dais were aware of greater difficulty in conducting a breech delivery. Three trained dais said that they do external version near term. One said she does it during labour. Two trained dais said version could not be done for breech but they did it for transverse lie. Four said it was not possible to do and one said the woman can die if version is attempted. One dai stated that she refers all breech cases to a doctor.

Twelve dais (3 trained) described how breech delivery was conducted by them. Seven seemed to act as passive onlookers only receiving the baby as it emerges. Three (two trained) described the Burns Marshall technique; one mentioned massaging of abdomen and one said she gives an injection prescribed by a doctor (probably meaning Pituitary Extract)

The other five refer breech deliveries to a doctor. Difficulties in management mentioned by eight dais (five trained) were:

i) Incarceration of the after coming head
ii) aspiration of blood by baby
iii) stillbirth

One trained and one untrained dai had never palpated or conducted a breech delivery.

Other abnormal Presentations:

Transverse lie was the next most frequently recognized malpresentation. 2 untrained and one trained dai recognize it and the untrained dais attempted version to correct it. One untrained dai described a face presentation she had conducted. Another had once seen a hand prolapse: she described how having replaced the hand the baby could be internally rotated and delivered.

Twins: 13 of the dais were questioned: 10 of them (6 trained) had conducted twin deliveries without any difficulty. One had witnessed delivery of twins but not conducted it herself and two had never seen twins delivered.

Problems in management were denied by the dais.

Interesting beliefs about how the twins lie in the uterus were expressed. (i) one baby is always a vertex the other a breech. (ii) One

lies straight, the other transversely - which straightens once the lower one is delivered. (iii) Both breech. (iv) There is water between the two babies. (v) There is excessive liquor when there are two babies. (vi) Babies lie one in each compartment of the uterus: these compartments can be palpated. (vii) There is one placenta and two cords. (viii) Two placentae and two cords.

Some of the dais are aware of association between twinning and cord compression, high foetal loss, and difficult labour.

Medical assistance was frequently sought for delivery of twins.

Cephalopelvic Disproportion

Association of short stature and difficult labour was mentioned by several dais (4; 2 trained). "Hardness" of bones was mentioned as a cause by two dais. None of them assess the pelvic outlet and one trained dai said she refers a woman with 'small bones' to the doctor.

Two untrained dais said they had never seen C.P.D.

Hydramnios

Only 3 dais said they had seen hydramnios. One had seen it with twins (untrained), and recommended breaking membranes with a finger nail or a hairpin to release the pressure. The other two associated hydramnios with difficult labour and recommended referral to a PHC.

Difficult labour

Only 3 untrained dais said they had had any difficult cases to conduct. These they had refered to FHW or a doctor who had given injection (i.e. referring to the use of Pituitary extract)

Prolonged labour

Among 17 dais there are 7 who gave information about this. Labour of more than 24 hrs. in primiparae and over 2-3 hrs. in multiparae was regarded as prolonged labour. They regarded medicines and injections of no use if pains [illegible]. "Cuggal" [illegible] and chanting by Gyana was mentioned by two trained dais as a line of management. Four others (3 trained) refer these cases to a doctor or the FHW.

Perineal Tear

Only 2 dais (both untrained) were asked about perineal tears. One said all primaparae sustain some degree of laceration. She applies GV locally to it. The other applies ghee and advises fomentation to the part.

Delivery of Placenta

All dais are anxious for quick delivery of placenta. The fear is that the placenta if retained, may rise up to the heart and kill the patient. Four dais (3 untrained) said they wait for 1-1½ hours before removing it manually. Three dais (two trained) refer such cases to a doctor, four dais (3 untrained) said that there is never any retention of the placenta.

Cutting the Cord

Most said the cord should be cut only after delivery of the placenta. It should be milked before being tied, as the life of the baby is in it and has to be put into the baby. The belief is that cutting of the cord before the placenta is delivered may lead to retention.

Post Partum Haemorrhage

Six dais (5 trained) raise the foot end of the bed and inform the FHV or a doctor in case of PPH. Two said the more a woman bleeds the better for she gets rid of dirty blood. Two said there was no such entity as PPH.

Three dais (2 untrained) pack the vagina, one untrained dai prepares a herbal brew with "groar ki phali" - raw beans are dried in the shade, roasted in an iron vessel and three doses in water are given to check bleeding.

One untrained dai sends for a doctor who has the "injection" to check the bleeding.

Perinatal Death

8 dais were asked questions about this. Causes mentioned were:

1) prematurity - by one trained, one untrained dai
2) Asphyxia due to delay in delivering the aftercoming head.
3) 'Kasar' (magic spell) - one untrained dai.
4) Aspiration of fluid - one untrained dai
5) No cause - 2 dais (one trained).

Resuscitation of the Baby

All the dais were asked about this. 12 dais (8 trained) mentioned holding the baby upside down and smacking it on the bottom in order to make it cry after birth. If the baby does not cry, thirteen dais (seven trained) said that they heat the placenta on a 'tava' or cowdung cake fire - six dais (five trained) mentioned blowing into babies ears and mouth as a means to make it breathe. Five trained dais described mouth to mouth respiration. Three dais spoke of cleansing the mouth, one untrained

dai said she covers the babies mouth with a cloth in order to make it cry. Two trained dais spoke of immersing the baby alternately into hot and cold water in order to rescucitate it. One trained dai said if all fails she sends for the doctor who "gives an injection". Two dais (trained) differentiated between blue and white asphyxia.

Post Natal Care

Immediately after birth the dais recommended 'Sevian' (vermicilli) and 'chhutaras' (dry dates) be given to the woman in sweetened milk. The dais visit the woman every day and clean her and the baby.

Engorged breast

Most of the dais prescribe hot fermentation. Eleven mentioned the use of the breast pump (6 were untrained). Hot fermentation is given with cotton swab soaked in oil, salt and water in the belief that it softens the breast and milk can start flowing again. One dai (trained) mentioned use of alum for fomentation.

For breast abscess hot fomentation was again recommended. One dai said that the lump in breast is due to hair blocking the milk channels. She /by treats it/telling the woman to stand under a drain, take hair from the head and message it over the lump seven times to make it disappear.

Cracked nipples

Hot water fomentation, gentian violet, oil, warm ghee were mentioned as treatment for cracked nipples. One dai (untrained) had never seen the entity.

Infertility

Ten dais were asked questions regarding infertility. There was little knowledge of etiology of sterility among the dais. Treatment recommended varied from going to Syanas, messaging oil on abdomen to recommending remarriage.

Family Planning

Only 13 dais were asked questions about F.P.

Seven dais (five trained) had knowledge of IUCD, injection Depo-Provera, Pills and vasectomy. Five dais (4 untrained) had no knowledge ofthese methods.

THREE dais (2 trained) gave three different indigenous methods of family limitation.

1) After childbirth a needle and thread is passed through the placenta and then buried.

2) 'Dhania', 'Khaskhas' and almonds are ground to a paste and eaten during menses for 2 months.

3) The dai herself had eaten isabgol in milk for heavy periods and had stopped having babies. She now recommends it as a method of birth control.

Three dais were asked - "How many children should people have". They thought 3 children were enough. They do not however force their views on their clients since the women get annoyed if they do so. Only one dai (trained) was very forceful in her views and said she tried to motivate people to accept F.P.

General Practice of the Dai

The Dai is often consulted for medical, gynaecological and paediatric complaints by village women. Some aspects of her practice picked up during interviews are as follows.

Constipation is treated by the dai (4 all trained) with advice to eat green leafy vegetables, 'sag' and peanuts. One dai (untrained) said she massages the back and "shakes" it to make the woman pass stool. Constipation during pregnancy is sometimes referred to the Doctor or the FHW by one dai. She also advocated the use of enema which she herself gives to evacuate bowel and also to hasten delivery.

Nausea there is widespread belief that if the 'kodi' (xiphisternum) is depressed it leads to nausea. Massage of the kodi is frequent practice.

Sore throat - two dais told of massaging the throat if it is sore. One had only seen it done, the other does it.

Diarrhoea - The cause is believed to be inversion of tip of end of spine (coccyx). The treatment advocated is local massage to lift the "Dhundri".

Menstrual disorders - Dais are often called to treat heavy periods. Two trained dais give a karah of ajwayan and sonf in milk or water. Another (untrained) gives a jushanda of 'sonf' rosewater and 'gulkand' in three doses for three days. The others refer them to a hospital or the FHW.

How to obtain a son

Eleven dais were asked if they advised women on how to have male offspring. Nine (four trained) said they did not know how to ensure this. They said people go to Syanas, use drugs, although it is in Gods hands. Only one dai said she does not believe that any of these things work.

Only two dais (one trained) gave prescriptions for having male babies.

1) Take the middle of the peacocks feather, mince it and mix it in 'gur'. Make 7 balls of it and give it to a woman after one month of pregnancy on 7 days with milk. She is sure to get a son. This was taught her by her mother-in-law.

2) Take Saklingi booti in cow's milk. This dai also spoke of the peacock feather treatment. This one does not work if the woman has exceeded two months gestation.

Paediatric Practice

Most dais refer the child to FHW. Some blow on the urethral meatus if a baby does not pass water. They give 'gutti' to a baby who does not pass stool.

Eye Infection of children is treated with 'Kajal' with warm ghee, and with 'Lan'. 'Lan' is made from putting a dish over a mustard oil lamp or can be bought in the market. Some recommended (four) that the child be taken to a doctor.

Other assorted beliefs

There is great fear of the marasmic (the 'soka') child. It is believed that if a pregnant woman walks over a place where a soka was bathed or has passed urine she will abort.

Lack of breast milk is attributed to 'shadow' falling on the woman.

Reflection of light believed to be a cause of tetanus leads to covering of all brass utensils in the room where labour takes place. Tetanus is widely held to be caused by reflection though 2 dais had noticed its association with dirt.

3. OBSERVATION OF DAI DELIVERY

A composite account follows of how Dais conduct domiciliary delivery The description is based on observations of 15 deliveries by 10 village birth attendants. 5 of these 10 dais had received a course of instruction at a government health centre years previously.

Labour is conducted in a room set aside by custom for childbirth; often used at other times for storage of grain. Traditionally an innermost room of the home, it is selected for its darkness, its least likelihood of being disturbed or overlooked, and for its 'kaccha' floor. Neonatal Tetanus is believed to be caused by light falling on the perineum during delivery hence the choice of a darkroom, avoidance of direct lamplight and removal or covering up of mirrors, shining brass utensils, glass photograph frames etc. Tradition demands that the secundines are buried within the home are rightly regarded as part of the body of the newborn member of the family. Hence in homes where tiled or cement floors are found the cattle shed because of its earthen floor, may be preferred for confinement.

labour is well established before one of the women of the home, or occasionally the husband, is sent to call the dai. During the earlier part of the first stage the patient remains up and about, occupying herself with household duties.

As the first stage progresses the patient comes to the delivery room and when the dai arrives there are 3 to 5 other occupants; mother or mother-in-law, grandmother, sister-in-law or a neighbour. The parturient is never on her own nor is the Dai left alone with her patient. At some time before the Dais arrival the hair of the pubic area has been removed.

Posture in first stage

Until brought to bed by the severity of her pains the woman is encouraged to standup during contractions for as long as possible so that gravity assists the descent of the presenting part, into the pelvis. Even during the earlier part of the second stage she may get to her feet with each contraction and, standing bowed and holding onto a convenient piece of furniture, will bear down in this posture.

Vaginal examinations

Although using abdominal palpation in pregnancy, the dai prefers to rely on vaginal examinations to assess progress in labour. While the use of this is limited in the first stage (except labour is unduly prolonged) to 2 or 3 occasions, in the second stage digital exarination is made with each contraction. After anointing the unwashed hand with ghee only one finger is introduced. No attempt is made to separate the labia with the free hand. Vaginal examination is always made during and throughout the pain so that advance of the presenting part at the height of contraction is noted. After completing the examination she wipes her hand on one of the cloths on which the patient is lying.

Judging from the dais comments she seemingly assesses four factors during vaginal examination; presence or absence of the forewaters, presentation, dilatation of the Os, and descent or proximity of the presenting part to the vulva. During last year a dai having called in a Public Health Nurse and PHN, was found correct in her diagnosis of breech presentation despite both members of our staff having missed it.

While the foetal condition is of no account no auscultation of foetal heart sounds, no questioning the mother about foetal movements, no recognition of the significance of meconium staining (indeed the delivery room is too dark for this observation to be made) major importance is attached to the strength of uterine contractions and to the mechanical progress of labour.

Factors affecting uterine contractions

The possible stimulating or inhibiting effect of foods, drinks temperature and posture, on uterine activity, determines several judgements and courses of action. Ghee taken by mouth in pregnancy or during labour is believed to lubricate the birth canal from within; cold drinks are avoided; physically hot milk foods are encouraged. A source of heat is maintained beneath the bed (and the patients back), throughout labour from a slow burning 'pathi' in a 'tasla' so that smoke adds to the gloom of the delivery chamber. If contractions weaken, abdominal massage is given or the patient's

abdomen may be "shaken" by the dai bouncing the patient after placing both the hands beneath her back.

While, the world over, incorrect recognition of the transition from first to second stage may lead to premature attempts to 'push' on an incompletely dilated cervix, the dai does seem to relate full dilation of the Os to the onset of expulsive effort.

Generally speaking, while the dai is largely an onlooker at actual delivery of the baby and remains inattentive to the natural evolutionary movements of flexion extension, restitution etc. which are perhaps over stated in western teaching, she plays a more active role during the earlier part of the second stage.

SECOND STAGE

Once the patient can no longer suffer her pains standing up and the second stage is well established she is maintained half sitting, half lying on her bed, her shoulders supported forwards by a woman of the house standing behind the bed-end or crouching on the bed behind her. The patient's knees are drawn up and feet and legs separated. The dai sits facing her at the other end of the bed. She places her heels over the region of the patients ischial tuberosities apparently exerting pressure, during contractions, both towards the patient as well as in an outward and backward direction. This practice is believed to facilitate passage down the birth canal and delivery, and prevent perineal laceration. 'Heeling' maintains the patients thighs apart, provides a purchase against which the parturient presses. Combined with forward support to the patient from behind the pelvis is seemingly fixed and the patient's natural inclination to 'withdraw' from her pains, close her legs and tighten the outlet is prevented. Possibly as the pelvic floor dilates, 'heeling' may also support or 'control' the perineum and its lateral and backward pressure on the soft tissues may assist their passage over the advancing and 'crowing' vertex: (only vertex deliveries were witnessed) 'Heeling' is maintained with contractions throughout the second stage and continued until the third stage is over. Explanations of the mechanism of 'heeling' must remain speculative because these manoeuvres, most of the time, are concealed from view by a sheet drawn over the dai's and the patient's knees. Beneath this sheet, with every pain the dai repeats a one-finger vaginal examination. At the same time she may 'iron-out' the perineum after, lubricating the vagina with ghee, to increase the elasticity of the tissues and avoid lacerations as formerly practiced by obstetricians in western countries. If the squatting position is adopted in the second stage it is aided by placing an unused cowdung pathi, wrapped in a cloth, convex surface upwards underneath the perineum.

DELIVERY

Crowning of the vertex is unassisted. Wiping the babies eyes and toilet of the oropharynx are only carried out after completion of the third stage. Delivery of the trunk is awaited (no case in which undue delay occurred was observed). After expulsion the baby is lain in a cloth on the bed between the mother's (and the dai(s) legs. The cord is never cut before the placenta is out. The 'heeling' process continues. Assistance is given to the baby only when it fails to cry. At this stage attention is concentrated on hastening delivery of the placenta, for delay is believed

THIRD stage

to lead to retention and result in a placenta which "rises upto the heart". (And yet many do not appear to recognise the hazard of post partum haemorrhage). By asking the mother to strain or cough assisted by simultaneously massaging (whether by chance or design) the fundus with the other hand, the placenta is delivered onto the bed.

Treatment of the Cord

After the placenta is out, a tight cloth having been placed over the mother's perineum, or pushed with the dai's heel, into the introitus, the child with the placenta is placed on the ground and the cord is attended to. It is strongly held that the baby's 'life' and 'breath' reside in the afterbirth and severing the cord before the placenta is out will deprive and prove fatal to the newborn. The cord is milked towards the umbilicus when the pulsations have ceased, tied with 2 braided ligatures of linen thread prepared earlier on and cut leaving a stump of 2 inches. Large household scissors are often used (possibly a concession to the 'observer') or a 'Kripan' or other implement in which case thecord will be severed against the bed or the floor. In some cases such instruments have been cursorily dipped in boiled (not boiling) water. Ash from the 'pathi' fire, by now grown cold beneath the bed, is rubbed on the cut end of the cord.

The eyes and mouth are now cleansed and the baby bathed in a tasla of luke-warm water which may also contain a shagan of grains, gur and money. The gur is put into its mouth by a woman of 'sweet temperament'. The child is then shown to its mother and laid beside her after she is cleaned up. No formal inspection is made for perineal lacerations.

In one case delivery resulted in stillbirth. The cord twice around the baby's neck was slipped over the head (usually cord round the neck is ignored). The child's failure to breathe enabled the following measures used to resuscitate the newborn to be recorded:

Resuscitation of the newborn.

a) The baby was first held by the ankles head down and slapped on the buttocks.
b) Blowing sharply in its ears.
c) Mouth to mouth breathing given by the dai.
d) The placenta was heated over a chapatti iron.

The first 2 measures are commonly used - the last two only in a serious emergency.

Burial of the placenta in a hole about 8 inches deep in the floor at the foot end of the mother's cot completes the process of domiciliary confinement, the placenta being wrapped in a new cloth accompanied by some grains and gur as a 'shagan' and salt added to 'dissolve' the placenta. In the case of a stillbirth, the baby was buried with the placenta.

PART V: PERINATAL DEATH SURVEY

On August 25, 1970, an enquiry started on all perinatal deaths taking place within the experimental area (population : 30,000). 165 perinatal deaths to local and incoming parturients were recorded between the September Ist, 1970 and March 31st, 1972. Of these 117 (70%) were investigated. Incomplete coverage was due chiefly to absence of staff members to dislocation of movement by the war and in a few cases by refusal of the patient or her family to collaborate.

Methodology

Notification of perinatal deaths as soon as possible after the event was assisted by-

(i) Prompt reporting on self-addressed post cards by F.H.Ws. residing in the villages.

(ii) Taking immediate note of events reported in the Vital Statistics survey.

The interview took place within seven days of the perinatal death in 40% of cases; in 80% within a month (the date was not recorded in 45).

The patient, women of the house, the dai and the FHV were questioned to reconstruct the sequence of events preceding the death. Because of her defensive attitude the dai was interviewed separately. The investigation was conducted in 75 cases by the Project Officer and in 42 by the Project Physician. In some cases a cause of death could be ascribed without difficulty, e.g. congenital malformation or extreme prematurity; in others, a cause could be reconstructed after prolonged interview (as in deaths following aspiration of spoon-fed milk); in fourteen others no cause could be established.

REPORT

There were 117 perinatal deaths; 56 were still born; 61 were neonatal deaths before the endof the seventh day of life. While there was a preponderance of male still births (65:48) sex distribution wasequal in Ist week deaths. There were 4 maternal deaths also: one reportedly from puerperal tetanus, another almost certainly the outcome of repeated criminal attempts to terminate pregancy in an unmarried Jat mother during the third trimester, one postpartum haemorrhage, and a case of cerebral cortical venous thrombosis.

contd.....

Distribution by village

31	Ballowal	11 (1 set twins)	Mansuran	4
	Chamiarda	9 (2 sets twins)	Rattan	1
	Dhaipee	6	Saya	6
	Dolon Kalan	5 (1 set twins)		
9	Uksi	8	Gurun	6
	Chonon	4 (1 set twins)	Kaind	1
	Sekha	3	Deol	5
	Kishanpura	4		
	Rajgarh	3	Rattowal	9
	Dangon	2	Tugal	2
	Mangal	3		
	Durka	4	Jand	8
	Deol	3	Ghuman	5
				117

Sex Distribution

	Males	Females	Not recorded	Total
Still births	32	21	2	55
1st week deaths	33	27	2	62
Total	65	48	4	117 (incl 5 sets of twins)

Maternal Parity

Parity	Primiparae (Para 0)	2	3	4	5	6	7	8	9	10	11	?
Perinatal deaths (112 mothers)	31	33	12	7	7	6	5	1	3	1	1	5

Maternal Age

Mother's Age	11-15	16-20	21-25	26-30	31-35	36-40	41-45	45-50	Not recorded	Total
No. of P.N.deaths	1	11	32	35	16	6	3	1	7	112

(Age was not recorded in 4 cases. The youngest mother was a primipara of 15, the oldest a grand multipara aged 48. There was also a secundipara aged 42, a para 6 of the same age and a para 11 aged 41. The mothersof twins were aged 29, 25, 26, 28 and 28.

b. Length of Gestation and Birth weights

With four exceptions the gestation period was identifiable from the record of the last menstrual period. Birth weights were recorded in only 24 cases. In the remainder the body of the dead child had been disposed of before a member of the PHRC staff visited the home or there had been opposition to weighing the neonate. In 2 cases birth weights were totally at variance with the dates estimated from the last menstrual period.

Period of gestation	No. of deaths	Birth weight in Kgs.	No. not weighed
28 to 30 weeks	18	1.1,1.5,1.5,1.4	14
31	5	(twins 0.9,1.2)2.7	2
32	6		6
33	2		2
34	7	2.0	6
35	2	(twins 1.9, 1.5)	-
36	7	2 [illegible].	6
37	4	1.5	3
38	6		6
39	10	2.9, 3.2	8
40	38	3.2,2.9,3.4,4.5,3.1,3.5	32
41	1		1
42	3	3.4	2
42+	1		1
Not known	7*	[illegible] 2,1.3	4
Total	117	24	93

*included grossly immature baby where exact date of birth not known.

c. Participation of RHRC staff

The FHV, FHS, or physician were called during labour or provided natal or neonatal services to the mothers of 3[illegible] of theses perinatal deaths (i.e. to 30 mothers since there were 5 sets of twins). 50 perinatal deaths were in villages to which women's services are provided. This indicates that staff were consulted in 60% of cases of abnormal maternity.

d. Antenatal prediction of increased obstetrical risk

Identifying those women with increased obstetric risk, according to a simple system of classification for pregnant patients has become an important part of antenatal care provided by RHRC staff (See Chapter 17)

Category I : normal

Category II : patients with abnormality in present pregnancy, (twins, breech, etc.)

Category III : patients with bad obstetric histories

Category IV : patients with unfavourable stature, age (over 40) etc

By applying this classification it was found that among 112 mothers of the perinatal deaths that were investigated seventy-eight percent belonged to high risk categories.

Category I 39 were [illegible] during pregnancy to be normal in all respects 35

Category II 17 would have presented a recognizable abnormality [illegible] hydramnios or unusual [illegible] (10 cases) 16

Category III 20 had [illegible] histories of still birth, neonatal [illegible] or eclampsia 2/(7[illegible]

Category IV 27 were [illegible] age (over40), short stature (under 4ft 10) high parity, etc 42(

(There were [illegible] having multiple categories)

e- Causes of perinatal death

Reconstruction of events leading to perinatal death, from interviews, examination of birth weights, gestation periods and medical records including those reports from Christian Medical College Hospital, Ludhiana and those from Primary Health Centres

yielded the following findings:

Congenital abnormality incompatible with survival (Total 8)

Anencephalies	3
Amorphinos with multiple other deformities	2
Congenital abnormality of the G.U. system (death from uraemia due to anephros or imperforate urethra)	1
Hydrocephaly	1
Meningocoele with associated skeletal defects	1

Extreme immaturity: (Total 30)

Simple prematurity as death cause of death	20
Associated with multiple pregnancy	10
Associated with neonatal pneumonia and/or umbilical sepsis	1
Associated with aspiration of spoon or cup feeding of buffalo or goats milk	8

Death in term babies following aspirated spoon feeding (total 3) 3

Birth Trauma: (Total 22)

Associated with contracted pelvis	3
Associated with breech delivery (breech Trauma)	13
Associated with prolonged labour	3
Associated with large babies (reported to have been 10 lbs and 8 lbs.)	2
Associated with neonatal sepsis	1

Intra uterine asphyxia: (Total 24)

Cause unknown	4
Associated with Abruptio Placentae	3
Associated with pre-eclamptic Toxaemia	2
Associated with maternal epileptic convulsions during labour	1
Associated with the use of I.M. Pitocin during labour (pituitary Asphyxia)	9
Associated with Placenta Praevia	2
Associated with Placental insufficiency syndrome	1
Associated with Dystocia and prolonged labour	2

Neonatal pneumonia in term baby 2

Haemorrhage from the cord

Neonatal tetanus (babe not seen by any staff member. but family gave history of convulsions) 1

Neonatal infection - focus unidentified 1

Criminal attempt to terminate pregnancy in last trimester resulting in death of the undelivered mother associated with uterine haemorrhage 1

Cold injury: infanticide	1
Perinatal deaths in which no cause was found*	14
Total:-	117

*includes one case probably due to overlaying and one [illegible] death under suspicious circumstances.

Prematurity is the commonest single identifiable factor in the series. It is present in 44% (52), being an associated factor in 32 while appearing to operate as the sole cause of death in 20 others. It was associated with winning in 10 early neonatal deaths.

In 6 premature infants the proximal cause of death appeared to be aspiration [illegible] spoon or cup to a child with a poorly developed sucking reflex. In three other term infants, registered poor feeding was quickly followed by cyanosis, respiratory distress and death.

Spoon feeding is widely practiced during the first 3 days of life because of the belief that colostrum is harmful to the infant. The child is not started on the breast until the 3rd or 4th day.

Injections of Pituitrin were given during labour to 21 of 112 patients (5 with twins). It was employed in 1 in 4 labours terminating in stillbirth. (A dose of 10 units is usually given, often repeated, in one patient on 2 occasions). No case of ruptured uterus was recorded, but in 9 cases repeated doses of Pituitrin appeared to be the sole causal agent in foetal death from intrauterine asphyxia.

23% of still births were due to breech trauma (11% of all perinatal deaths in the series). The birth attendant in all cases admitted having difficulty in extracting the aftercoming head.

4 were in primiparae at term: 9 in multiparae. Maternal stature was below 148 c.m. (the lowest 25th percentile), in only one case (147 c.ms): In several other patients with premature breech delivery the history suggested extrusion of the foetal trunk with incarceration of the head above an incompletely dilated cervix: a widespread and troublesome complication throughout Indian Obstetric practice.

CONCLUSION:

During a 19 months survey of 117 perinatal deaths in perinatal study villages a probable cause was established in 103.

Prematurity (44% of all cases; in 17% the chief cause of death), traumatic breech delivery (23% of all still births, 11% of perinatal deaths) intrauterine asphyxia following the free use of pituitrin by indigenous practitioners (16% of still births, 8% of perinatal deaths), deaths following aspiration of spoon feeds (8% of perinatal deaths) especially among premature infants, were shown to be the 4 commonest causes of perinatal mortality.

The underlying cause and prevention of prematurity is not understood; but breech trauma, pituitary asphyxia and aspiration of spoonfed milk in the early neonatal period are all avoidable.

Contracted pelvis and cephalo-pelvic disproportion is uncommon in the Ludhiana area and was not a frequent cause of foetal loss in this series. Many breech deliveries were in multiparae, and still birth caused by difficulty with the aftercoming head was probably as much due to lack of skill as to pelvic contraction.

In 74% of these mothers increased birthrisk would have been identifiable in advance by antenatal categorization had antenatal assessment been done (from past obstetric history; age, stature, parity; and detectable abnormality in the current pregnancy). Only 50 of these events however took place in villages where R.H.R.C., provide maternity care, and of these one in four were to daughters of the village returning to their maternal homes for confinement later in the third trimester.

The use of Pituitrin in labour, often in the first stage, is in response to a wide spread demand for this service among patients and dais. Intramuscular doses of ten units are given often repeatedly. Intrauterine foetal asphyxia is the outcome of placental ischaemia so induced.

Health education cannot remove over night the deeply embedded prejudice against putting the babe to the breast within the first three days of life. Meanwhile substitution of boiled sweetened water, the "Pal-adhe" (used by Tamilian mothers) instead of the spoon, or wick feeding in preference to spoon feeding is being tried.

Syd.
11.9.1972.